AccuMix™

AMX1000s

Operator Manual

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Highline MANUFACTURING
A DIVISION OF BOURGAULT INDUSTRIES LTD.

E22917_B

AccuMix™ AMX1000s

Self Propelled Vertical Feed Mixer

Operator Manual

From Serial No: AM4540401

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Highline Team Message

Congratulations on your purchase of the AccuMix AMX1000s *manufactured by Highline Manufacturing. We are excited about you feeding with the technically advanced feed mixer that is self- propelled and self loading. You will find flexibility and maneuverability of operation with this product.*

This Operator Manual has been prepared to provide information necessary for the safe and efficient operation of your AccuMix AMX1000s. In the manual you will find safety procedures, maintenance routines and detailed operational instructions.

If you find that you require information not covered in this manual, please feel free to consult your local dealer. Your dealer is always able to contact Highline for this technical information.

Highline Manufacturing thanks and congratulates you for selecting the AccuMix AMX1000s as your machine of choice.

Highline Manufacturing

Main General Table of Contents

GENERAL DESCRIPTION OF THE ACCUMIX AMX1000s

The AccuMix AMX1000s is a self propelled and self loading vertical total mixed ration machine. It is intended to load, cut and mix various types of feed products to prepare a mixed ration for feeding livestock.

The power for the machine is provided by a mounted diesel engine that drives hydraulic pumps. The hydraulics are used for the driving of the wheels, the operation of the milling head and loading conveyor, the mixing screws in the tub and the unloading conveyors.

The operator drives and controls the machine from the cab. There are 3 steering modes. Large tires allow loading and travel over uneven terrain to the unloading site.

The self-loading arm is controlled by the operator in the cab. There is a milling head and auger that moves material onto a transfer conveyor to place the material into the mixing tub. The milling head provides some initial cutting of materials and therefore reduces the cutting time in the tub.

The loading arm can be moved up and down to load from silage pits while leaving a smooth and uniform face that is resistant to weathering and degradation.

The milling head can also cut and load other materials such as hay bales, grains or materials sitting in a pile or on the ground. The loading arm also has a door for placing minerals or other additives onto the transfer conveyor and into the mixing tub. The adding of these additives is done with the arm lowered and the operator standing on the ground.

The loading arm conveyor moves the cut material from the milling head and loads it into the mixing tub where there are 2 mixing screws that perform additional cutting of the material while mixing all the materials. The speed of the mixing screws is adjusted by the operator in the cab.

The screws are powered by a hydraulic motor connected with a driveline. A planetary gearbox located under each screw center provides rotation to the screw The planetary gearbox is equipped with a remote oil reservoir.

The mixing tub is mounted on weigh scales that give readout of the weight of material in the tub to a display to the operator in the cab. The weigh scales can also be used to know the weight of material being loaded. When the desired weight has been loaded the milling head and conveyor can be reversed to unload any additional feed materials that are on the loading conveyor.

It is recommended that the proportions of the feed materials in the ration be determined in consultation with an animal feed nutritionist. The operator regulates the amount of material that is added according to the ration mix prescribed by the nutrionist.

While traveling to the feeding site the mixing screws in the tub agitate the product to form a uniform mix while also doing additional cutting.

Only one operator is needed to do the loading and mixing functions. Because the machine is self propelled the same operator drives the machine to the unloading site where it is discharged through doors on the side of the tub. The discharge conveyors/drop chutes move the material from the door to the feeding location. All the loading, transporting of feed materials and feeding discharge is controlled by one operator in the cab of the machine.

The main source of noise when using the machine is the diesel engine and the loading arm when loading materials. The diesel engine noise is not under the control of Highline. Hydraulic motors and gearboxes are used on the machine which generate minimal noise.

INTENDED USE OF THE ACCUMIX AMX1000s

The AccuMix AMX1000s is designed to load, process, mix various animal feeds and to unload animal feed suitable for feeding livestock in a ration that is designed by an animal nutritionist.
The AccuMix AMX1000s is intended for use in farming applications.
The AccuMix AMX1000s is intended for off road use though can be used on road when moving between mixing sites.

Any uses of the AccuMix AMX1000s other than the above stated Intended Uses shall be considered misuse of the AccuMix AMX1000s. This misuse shall include (but not limited to):

- Using the AccuMix AMX1000s in non-farming applications
- Processing materials other than animal feed materials

Always use the AccuMix AMX1000s according to the instructions contained in this Operator Manual and the safety and instruction decals on the machine.
Perform regular maintenance and repair to ensure that the AccuMix AMX1000s operates safely and efficiently.

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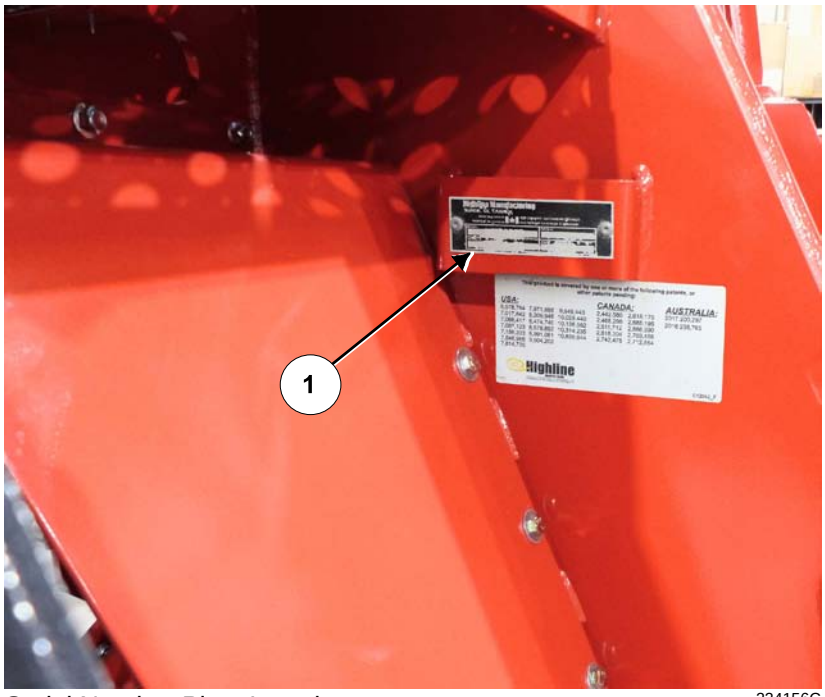
Table of Contents for Section 1 - AccuMix AMX1000s Safety

SERIAL NUMBER

Your serial number is found on the serial number plate (1) attached to the AccuMix AMX1000s on the frame near the front tub and the ladder going to the cab.



Serial Number Plate Location 224156C

It is important to record the serial number for proof of ownership and for any service or maintenance assistance.

Serial Number _____

Owner _____

Model _____

Date of Purchase _____

SAFETY SIGN-OFF FORM

Highline Manufacturing follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the AccuMix AMX1000s should read and clearly understand all Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow someone to operate this equipment until this information has been reviewed. This information should be reviewed by all operators.

This sign-off sheet is provided for record keeping to indicate that the person working with the equipment has read and understood the information in the Operator Manual and has been instructed in the safe operation of the equipment.

Date	Employee's Signature	Employer's Signature

SAFETY ALERT SYMBOL

The Safety Alert Symbol means:

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

The Safety Alert Symbol combined with a Signal Word alert to the presence of a hazard and the degree of possible injury.

Indicates an imminently hazardous situation that, if not avoided, WILL result in DEATH OR SERIOUS INJURY. The color is Red with White lettering.

Indicates a potentially hazardous situation that, if not avoided, COULD result in DEATH OR SERIOUS INJURY, and includes hazards that are exposed when guards are removed or unsafe practices. The color is Orange with Black lettering.

Indicates a potentially hazardous situation that, if not avoided, MAY result in MINOR INJURY. The color is Yellow with Black lettering.

GENERAL SAFETY

1. Ensure that anyone who is going to operate, maintain or work near the AccuMix AMX1000s is familiar with the recommended operating, maintenance procedures and safety information contained in this manual and follows all the safety precautions.

2. In addition to the design and configuration of the equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of the machine.

3. The AccuMix AMX1000s shall not be operated without all the guards in place.

4. Always wear the seatbelt when operating the AMX1000s.

Emergency Cab Exit

- There is a small hammer device in the cab near the exit door to break the glass if the cab door is not able to be opened.

Emergency Cab Exit Hammer 224022

Fire Extinguisher

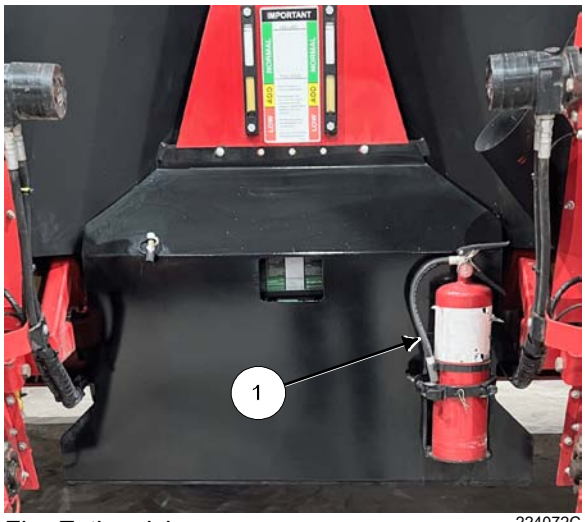
There is a fire extinguisher located below the mixer oil tanks which are on the right side between the tubs.

The fire extinguisher is a dry chemical type extinguisher and is effective on:

- CLASS A fires that result from ordinary combustible materials, including wood, cloth, paper, and many plastics.

- CLASS B fires that involve burning in flammable liquids, combustible liquids, petroleum greases, oils, alcohols, and flammable gases.

- CLASS C fires involving energized electrical equipment.



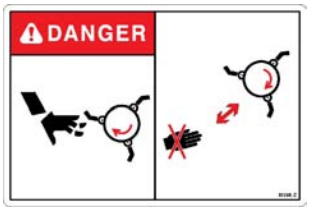
Fire Extinguisher 224072C

Check the following on the fire extinguisher:

- Confirm the extinguisher is visible, unobstructed and in its designated location.
- Verify the locking pin is intact and the tamper seal is unbroken.
- Examine the extinguisher for obvious physical damage, corrosion, leakage, or clogged nozzle.
- Confirm the pressure gauge indicator is in the operable range and lift the extinguisher to ensure it is full.
- Make sure the operating instructions on the nameplate are legible and facing outward.
- Check the last professional service date on the tag.
    - A licensed fire extinguisher maintenance contractor should inspect the extinguisher every 12 months.

SAFETY DECALS

1. Keep decals and signs clean and legible at all times.
2. Replace decals and signs that are damaged, missing or have become illegible.
3. Replaced parts that displayed a decal should also display the current decal.
4. Decals are available from the Highline Parts Department.
5. Be familiar with the decals, the type of warning and the area or function(s) related to the area(s) that requires your awareness.



KEEP PEOPLE AND ANIMALS BACK WHEN LOADING WITH THE MILLING HEAD

Contact with moving milling teeth and auger will cause serious injury or death.

Keep hands out of the cutting area of the loading arm when the drum is rotating.

Always set the park brake, lower the loading arm to the ground, shut off the engine, remove the key, and wait for all parts to stop turning before servicing.

Keep guards in place and in good condition.

Do not operate within 100 ft (30m) of any person.

STAND CLEAR OF LOADING ARM WHEN IT IS LOWERING

Contact with the loading arm while lowering will result in death or serious injury.

Never stand under the loading arm when lowering or raising.
Do not allow people near the loading arm when being moved.

The arm can lower unexpectedly and crush people underneath.

DO NOT ENTER THE TUB WHILE THE MIXERS ARE TURNING

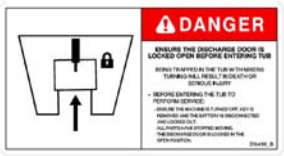
Entering the tub when the mixers are turning will result in death or serious injury.
Do not lean over the mixing tub while the screws are turning to avoid the danger of falling into the tub.

DO NOT CONTACT THE ROTATING SCREWS

Never attempt to manually remove debris while the screws are rotating.

DO NOT ENTER THE TUB WITH MATERIAL IN THE TUB

The material is unstable and may cause entrapment.
There is no means of exiting the tub when the tub is full.



ENSURE THE DISCHARGE DOOR IS SUPPORTED BEFORE ENTERING THE TUB

Being trapped in the tub with mixers turning will result in death or serious injury.

Before entering an empty tub to perform service:

- Ensure the machine is turned off, the key is removed and the battery is disconnected and locked out.
- All parts have stopped moving.
- The discharge door is supported in the open position.

STAND CLEAR OF THE DISCHARGE DOOR DURING OPERATION

A lowering discharge door will result in death or serious injury.

Ensure the door is locked open before entering the tub.

Before entering an empty tub to perform service:

- Ensure the machine is turned off, the key is removed and the battery is disconnected and locked out.
- All parts have stopped moving.
- The discharge door is locked in the open position.

STAND CLEAR OF THE UNLOADING CONVEYOR

Keep body and clothing away from moving parts to prevent serious injury or death.

Shut off the machine and remove the key before performing any maintenance on the conveyor.

STAY CLEAR OF THE UNLOADING CONVEYOR

Contact with the conveyor could result in death or serious injury.

Do not stand near the conveyor when the engine is running. The unloading conveyor could move suddenly and cause serious injury.

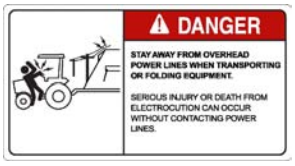
STAND CLEAR OF THE TIRES

Tires can steer towards the frame causing death or serious injury.

Tires can begin moving and run over a person resulting in death or serious injury.

Before servicing area near the tires:

- Ensure the machine is turned off, the key is removed and the battery disconnect switch is turned off and locked out.
- Ensure machine is on level ground
- Ensure all tires are chocked.
- Have a qualified tire technician service the tires and wheels



STAY AWAY FROM OVERHEAD POWER LINES

Serious injury or death from electrocution can occur even without contacting power lines.

Stay away from overhead power lines when transporting and operating equipment.

BE AWARE OF OVERHEAD SURROUNDINGS WHEN MOVING WITH THE ARM RAISED

A raised arm can contact overhead objects which will result in death or serious injury.
Arm contact with objects will result in machine damage.

DO NOT ALLOW RIDERS ON THE OUTSIDE OF THE MACHINE

Falling from the moving machine can cause serious injury or death.
Falling from the operating machine can cause being entangled under the machine or being injured by the machine.

KEEP STEPS AND WALKWAYS CLEAN

Dirty or slippery steps, walkways and platforms can cause falls.
Make sure these surfaces remain clean and free of debris.
Injury may result from slippery surfaces.
Face the machine when mounting and dismounting.

USE PAPER OR CARDBOARD TO CHECK FOR HYDRAULIC OR DIESEL FUEL LEAKS

The hydraulic system operates under extremely high pressure. Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

Wear proper hand and eye protection when searching for leaks. DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.

Stop the engine, remove the key and relieve the pressure before connecting or disconnecting, repairing or adjusting fluid lines.

Make sure all components are in good condition and tighten all connections before starting the engine or pressurizing the system.

If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Do not attempt any makeshift repairs to the hydraulic fittings or hoses. The hydraulic system operates under extremely high pressure. Such repairs will fail suddenly and create a hazardous and dangerous condition.

ACCUMULATORS CONTAIN HIGH PRESSURE OIL

Contact with high pressure oil may cause death or serious injury.

Shut off the machine, remove the key, disconnect the battery and safely drain accumulators before performing any maintenance on the hydraulic system.

Note: Some hydraulic circuits are pressurized a significant amount and need to be relieved with special methods before servicing.

DO NOT OPERATE WITH SHIELDS MISSING

Make sure all guards and shields are in good condition and properly installed before operating the machine.

Contact with the moving belt or sheaves may cause serious injury or death.
Keep shields fastened in place.
Keep away from moving parts.

DO NOT OPEN THE ENGINE RADIATOR CAP WHILE THE ENGINE IS HOT. THE RADIATOR CONTAINS HOT FLUID UNDER PRESSURE.

Contact with hot fluid could result in serious injury.

Shut off the engine.

Wait until radiator is cool. Hot coolant can spray out if a cap is removed while the system is hot.

Loosen cap slowly to relieve pressure.

TURN OFF BATTERY DISCONNECT SWITCH BEFORE DOING ANY MAINTENANCE

Machine starting or parts moving could result in death or serious injury.

Turn off the battery switch

- Before welding. (When welding also disconnect all computers and electrical monitors on the machine to prevent damage.)
- Before storing the machine for long periods of time.
- Before servicing or maintaining the machine or engine.

Lock the switch to the Off position when servicing the engine or machine. The lock will prevent another person from starting the machine while performing service.

KEEP ENGINE CABINET CLOSED

Keep the engine cabinet closed during operation as moving parts could cause injury.

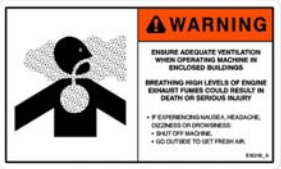
Contact with the moving parts could result in death or serious injury.
Keep away from moving parts.

Shut off the machine, remove the key, disconnect the battery before performing any maintenance on the engine.

All components in the engine area may be hot.
Allow cool down time before touching or servicing.

DO NOT PLACE HANDS IN THIS AREA WHEN RAISING OR LOWERING THE CONVEYOR

Serious injury could result if hands are placed in this clamping area.



ENSURE ADEQUATE VENTILATION WHEN OPERATING THE MACHINE IN ENCLOSED BUILDINGS

Breathing high levels of engine exhaust fumes could result in death or serious injury.

If experiencing nausea, headache, dizziness or drowsiness:
- Shut off machine.
- Go outside to get fresh air.

MOVING STAIRWAY PINCH POINT

Stairway moves with parking brake operation.
Keep body parts inside the stairway railings.
Pinch point between stairway and tub/frame.

Do not use the stairway while it is moving.

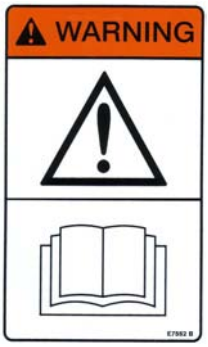
Pinching by the stairway could result in serious injury.

STAY CLEAR OF HOT ENGINE EXHAUST GAS AND HOT EXHAUST SYSTEM

Contact with the hot exhaust could result in death or serious injury.

Exhaust temperature can reach 650˚ C and cause severe burns.
Keep area around the exhaust system free of debris to prevent fires.
Allow the system to cool before touching or servicing.

READ, UNDERSTAND AND FOLLOW SAFETY INSTRUCTIONS

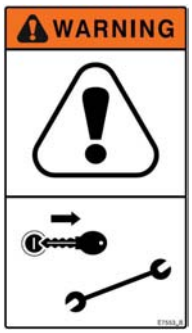


Read, understand and follow all instructions and safety messages included in this manual and on decals attached to the machine. These instructions and safety messages contain important information.

Allow only responsible, properly instructed individuals to operate and service the machine.

Failure to follow the instructions and safety messages in this manual and on the decals attached to the machine could result in serious injury or death.

Keep all safety and instruction decals in good condition. Replace any missing or damaged decals.



SHUT DOWN THE ENGINE BEFORE DISMOUNTING MACHINE

Shut down the engine and remove the key before repairing, servicing, lubricating or cleaning the machine.

Do not attempt to clean, lubricate, clear obstructions or make adjustments to the machine while it is in motion or while the engine is running.

DO NOT CONTACT A MOVING CHAIN

Contacting a moving chain or parts could cause serious injury or death.
Loose clothing and other loose or hanging items can become entangled in moving parts

Never attempt to manually remove material while hydraulic motors are moving the chain.

Always shut off the engine, remove key, set park brake and wait for all parts to stop moving before servicing.

KEEP PERSONS BACK WHEN THE LADDER IS MOVING

The ladder can move quickly when the machine parking brake is engaged.

The ladder can move quickly when the ladder switch is moved.

Contact with a moving ladder may result in minor injury.

AVOID CONTACT WITH HOT SURFACES

Contact may result in minor injury.

Heat from the hydraulic oil causes surfaces to be hot.
Do not touch pump, motors, oil tank, oil cooler or hydraulic hoses while using the machine.

Engine, transmission, exhaust components, and hydraulic lines may become hot during operation.

Allow surfaces to cool before handling, disconnecting or servicing these items.

DO NOT WELD ON THE MACHINE

Sensitive electronic devices and hydraulic hoses may be damaged by welding and could cause serious injury when operating the machine.

If needing to weld, disconnect the battery cables before welding on the machine or other repairs.

Disconnect all computers and electrical monitors on the machine to prevent damage.

- See Section 7 for a list of the computers and monitors to be disconnected.

Before performing any service on the engine, consult the engine manufacturer’s manual and understand and follow all safety practices given.

Always wear eye protection when working with batteries. Do not create sparks or have open flame near battery. Ventilate when charging or using in an enclosed area.

Battery acid causes burns. Batteries contain sulfuric acid. Avoid contact with skin, eyes, or clothing.

Battery post, terminals, and related accessories contain lead and lead compounds. Wash hands after handling.

Electrolyte is an acid. Electrolyte can cause personal injury. Do not allow electrolyte to contact the skin or the eyes. Always wear protective glasses for servicing batteries. Wash hands after touching the batteries and connectors. Use of gloves is recommended.

EXPLOSION HAZARD!

Do not remove, install or make repairs to a tire on a wheel rim. Take the tire and rim to a tire shop. Always have a qualified tire mechanic service the tires and rims on this machine.

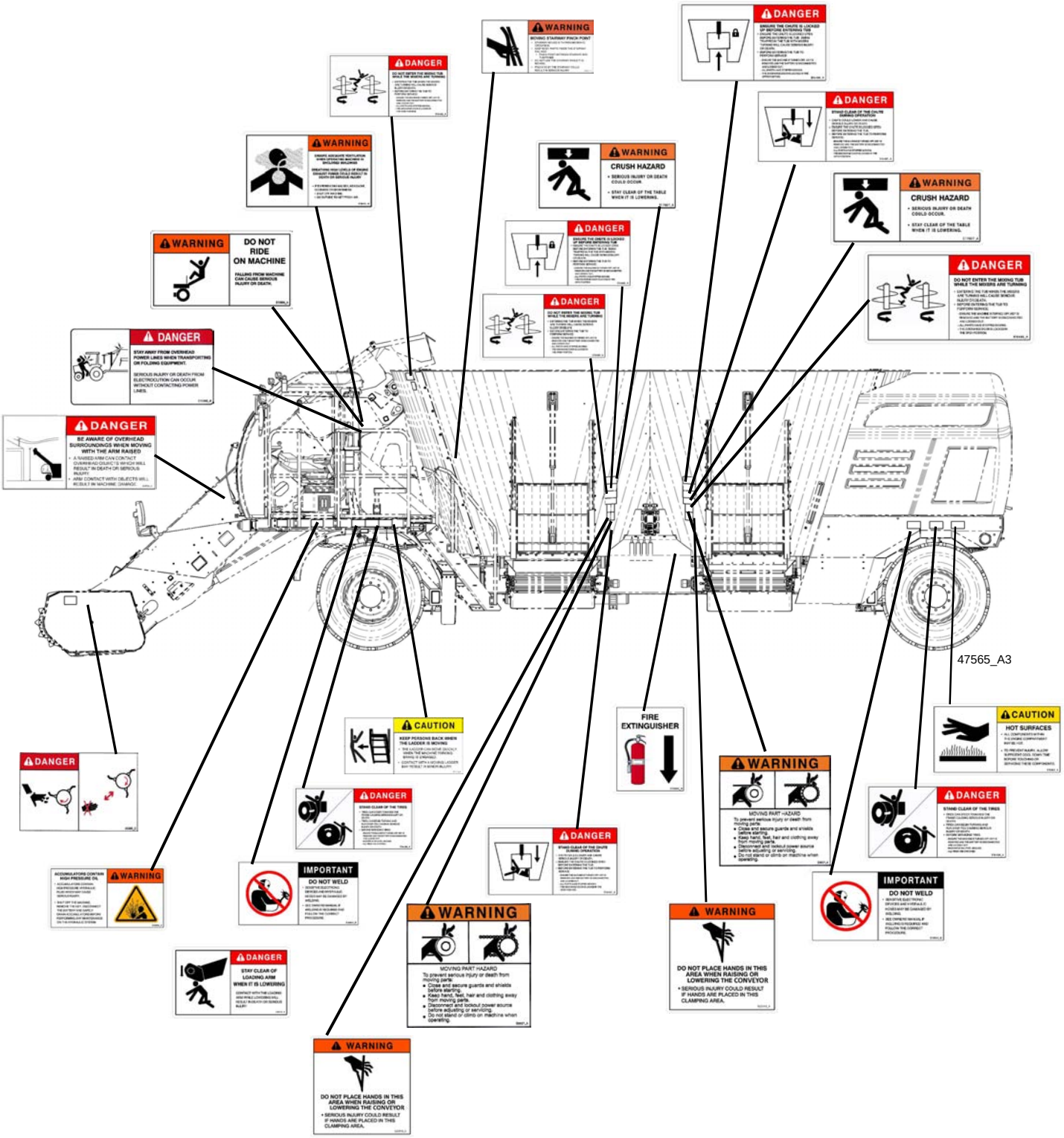
Failure to comply could result in death or serious injury.

ENSURE SLOW MOVING VEHICLE SIGN IS IN PLACE

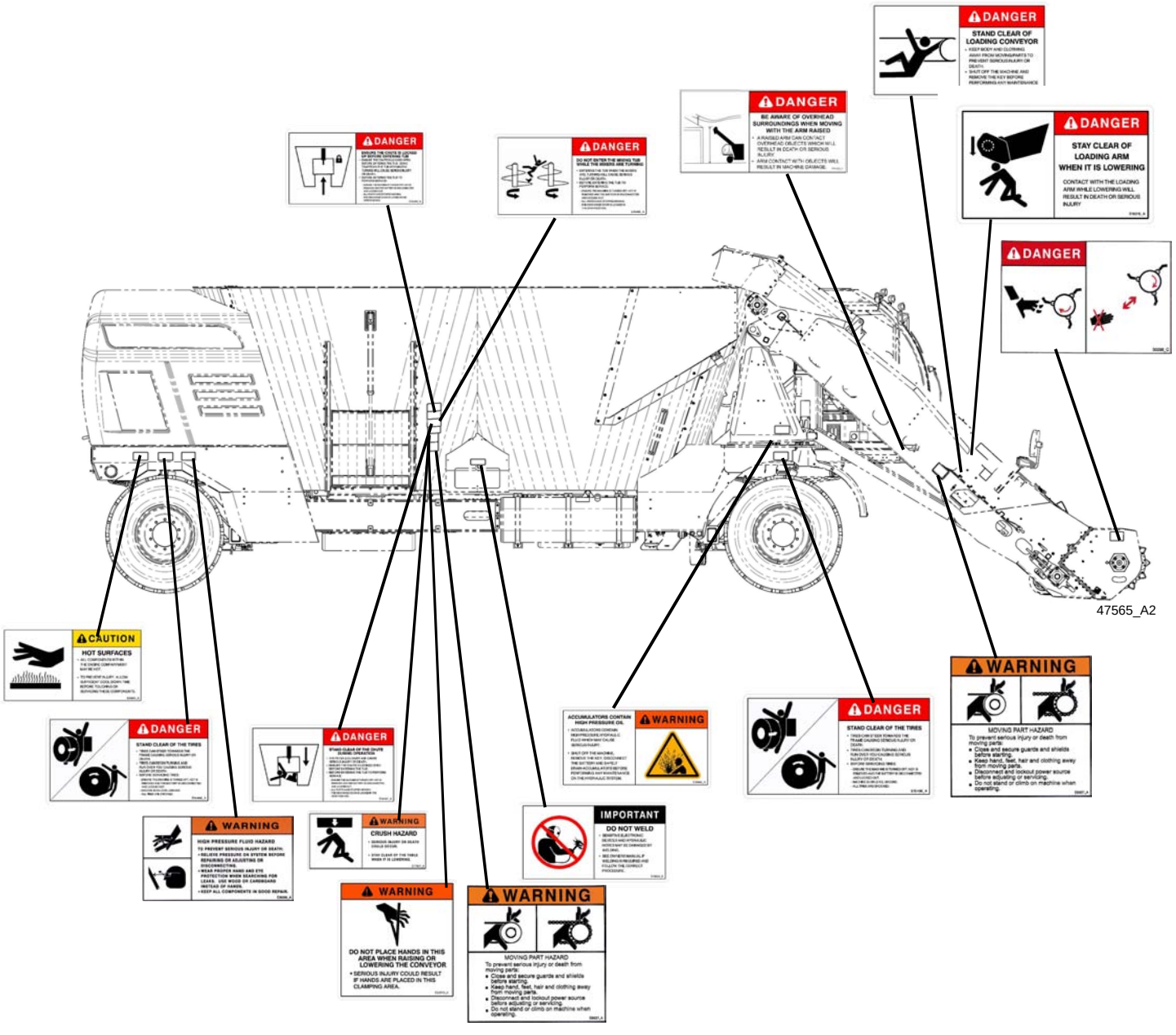
Ensure the Slow Moving Vehicle sign is in place, clean and easily visible.

Ensure the reflectors are in place, clean and easily visible.

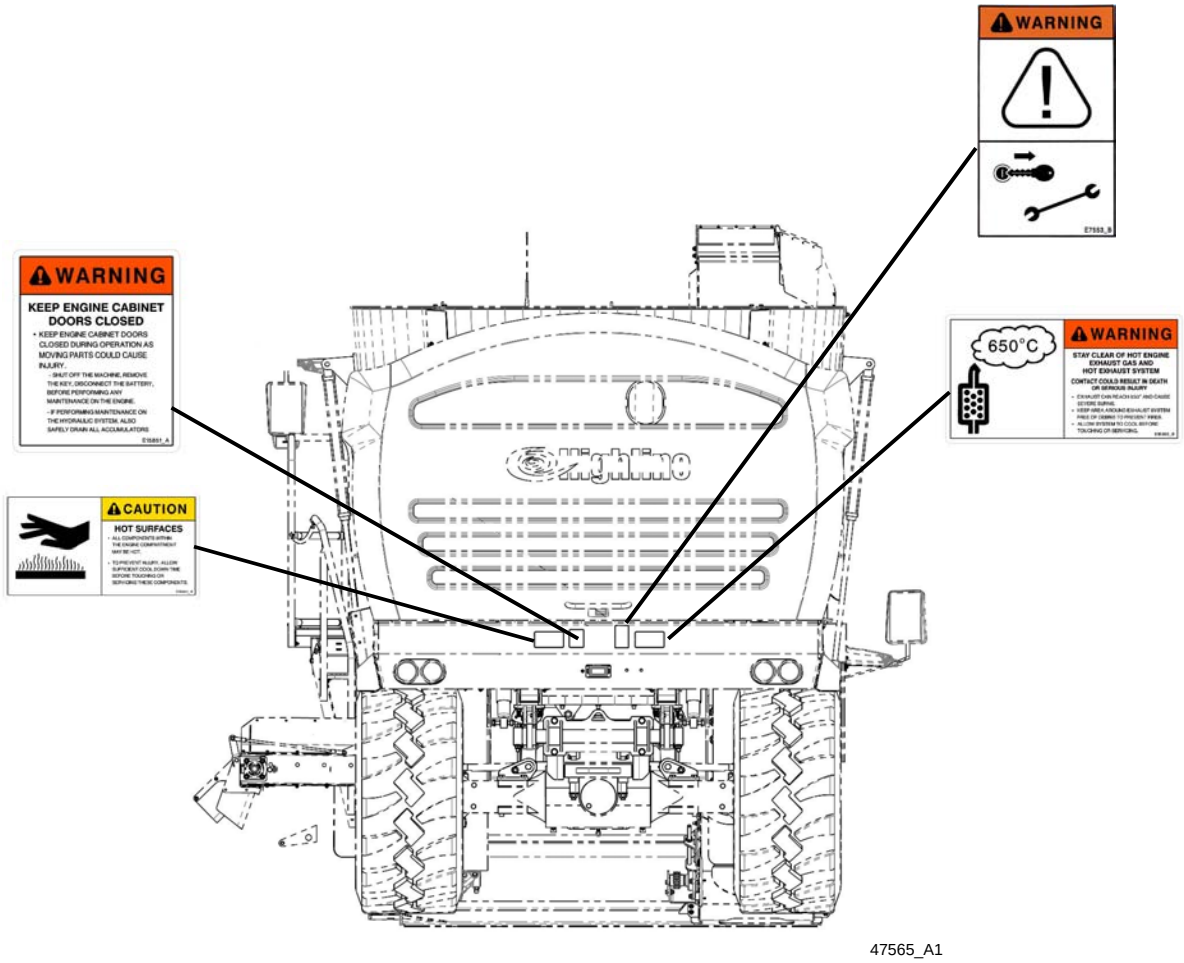
SAFETY DECAL LOCATIONS



SAFETY DECAL LOCATIONS



SAFETY DECAL LOCATIONS



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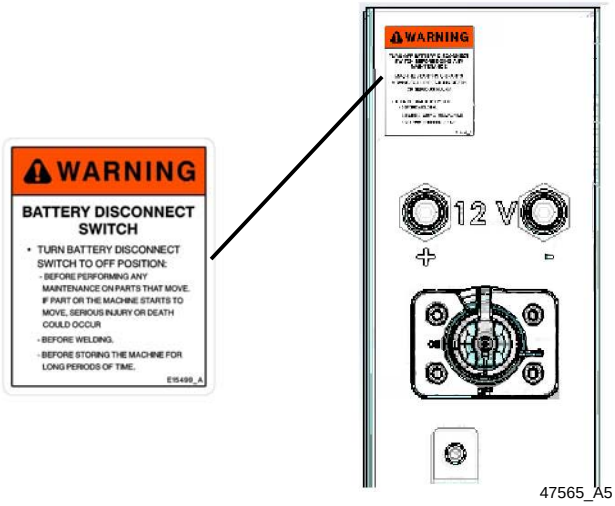
SAFETY DECAL LOCATIONS



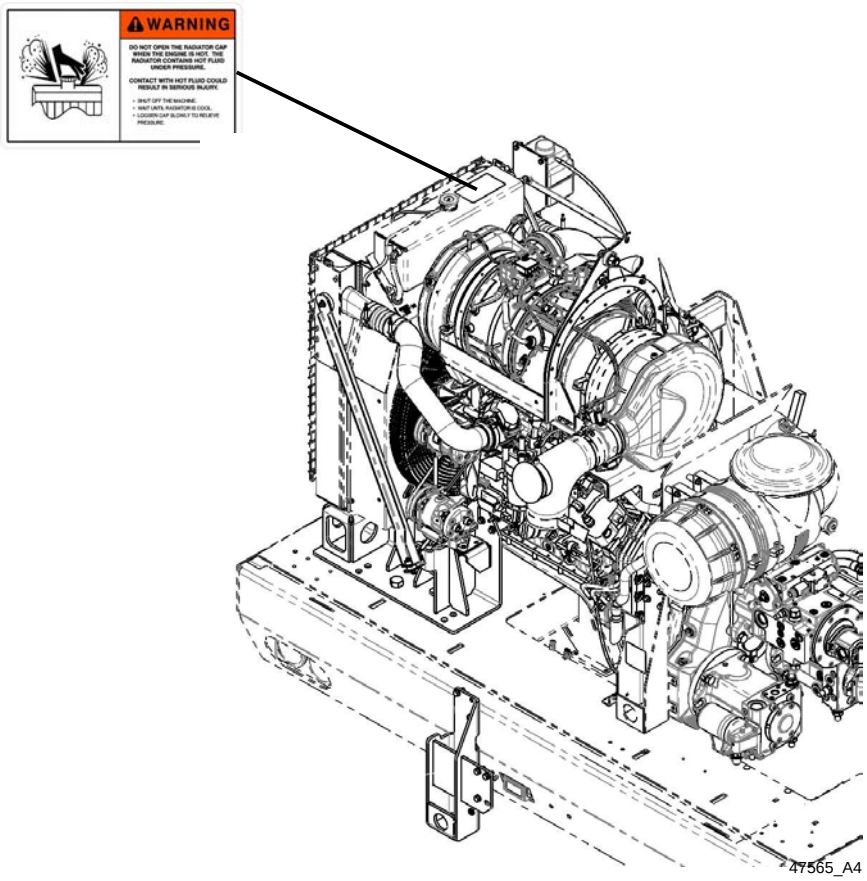


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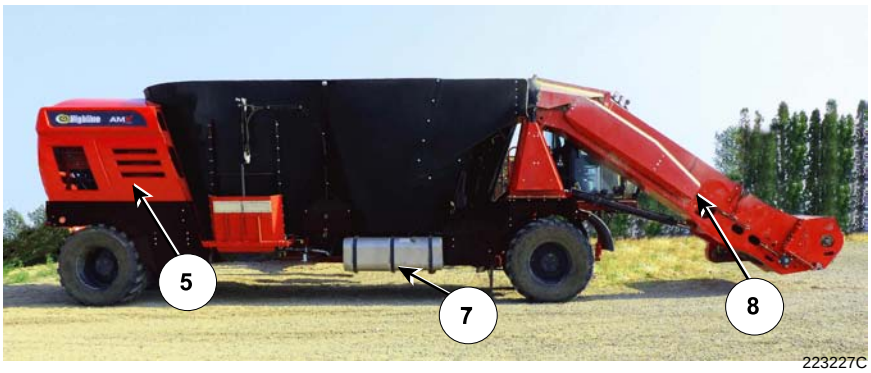
Table of Contents for Section 2 - Orientation to the AccuMix AMX1000s

Orientation to the AccuMix AMX1000s

1. 1000 Cubic Foot Mixing Tub with Dual Mixing Screws
2. Cab
3. Unloading Conveyors
4. Mixing Screw Oil Level
5. Engine and Pumps Access Door, Engine Cooling Radiators, DEF Tank Access
6. Moving Stair to Cab

223226C

7. Fuel Tank
8. Loading Arm and Conveyor



223227C

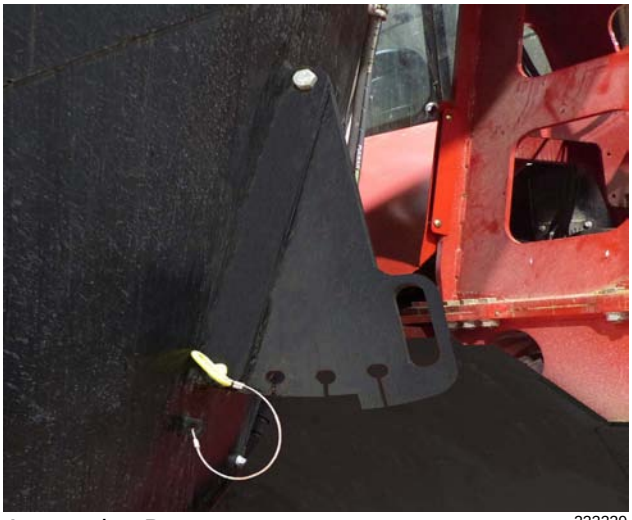
9. Mineral Door
10. Milling Head

223228-2C

11. Knives on Screws

Knives On Screws 224157

12. Adjustable Aggression Bars on Tub



Aggression Bar 223229

13. Engine and Hydraulic Pumps

Engine and Hydraulic Pumps 223239

14. Hydraulic Oil Tank and Cooler

Hydraulic Oil Tank and Cooler 223240

15. Diesel Exhaust Fluid (DEF) Tank Location

    Battery Shutoff/Lockout and boosting location.

DEF Tank, Battery Shutoff 223242-2

16. Tub View Camera

    - Located at the front of the tub under the rim.

Tub View Camera 224169

17. Rear Cameras, Engine Cover Latches

Rear Cameras, Engine Cover Latches 224074

Controls in the Cab

1. Steering Column, Turn Signals, Column Adjust

   Brake Pedal

Steering Column, Adjust, Turn Signal, Brake Pedal 223244

2. Lights Controls (Upper Front of Ceiling)

   Windshield Wiper Control

Lights Control 223245

3. Cab Temperature Control (Upper Right)

   Microphone

Cab Temperature Control 223246

4. Sound System (Radio/MP3/Phone Pairing)

Sound System 223247

5. Control Console

   - Weigh Scale Monitor
     - See the weigh scale supplier's operating instructions.
   - Camera Monitor
   - Joystick
   - Display
   - Parking Brake Switch
   - Engine Throttle Control

Control Console 223248

Table of Contents for Section 3 - AccuMix AMX1000s Display, Joystick & Cameras

AccuMix Display

The AccuMix display is used in the cab for making operation choices and viewing the status/operation of the machine.

The display can be used as a touch screen to make selections but also the buttons on the side can be used for making screen choices. There is a selector wheel that can be turned for selecting values and pushed to enter the value.

The Home page button is located above the selector wheel.
To move back one screen press button below the selector wheel.

AccuMix AMX1000s Display 224108

Push Info Button for Joystick Information 224163-2

Joystick

Joystick Buttons

The AccuMix uses a joystick which the operator uses in the cab.

Some of the joystick buttons change functions depending if the loading or unloading mode is chosen on the display.

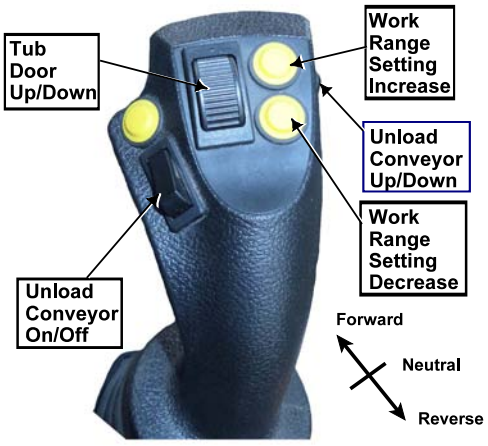
Push the Info button on the Display to bring up a picture of the Joystick buttons showing both the Unload and Load functions.

See the diagrams for detailed descriptions of what the joystick buttons do in the Load and Unload modes.

Note: The Loading Conveyor/Milling Head Reverse (while holding the button) can be activated even if the Milling Functions are turned off.

Operation information is given in Section 6 "Operating the AccuMix" for all the Load and Unload conditions.

Joystick & Button Load Mode Functions 223193C1



Joystick & Buttons Unload Mode Functions 223193C2

Machine Movement with the Joystick

! Engine Speed Throttle

The engine speed can be controlled with the manual rotating dial on the console.

Engine Speed Control

The machine also has automatic throttle control so that the engine speed will be adjusted according to the operating conditions chosen:

- Start engine and park brake engaged the engine goes to 800rpm.
- Releasing the park brake causes the engine to go to 1000 rpm as an indication that it is ready and that there is throttle control.
- Pushing the joystick forward, the engine goes to 1200 RPM and scales up proportionally with joystick position up to 1800 RPM.
- When the mixing screws are turned on the engine goes to 1200 RPM.
- When the milling head is turned on the engine goes to 2200 RPM.

! Work Mode Joystick Movement

When the machine is set to Work Mode the joystick controls the direction and speed of machine movement.

- Moving the joystick forward will move the machine forward. The more the joystick is moved forward the faster the engine will go and the machine will go up to the speed of the Work Range selected.

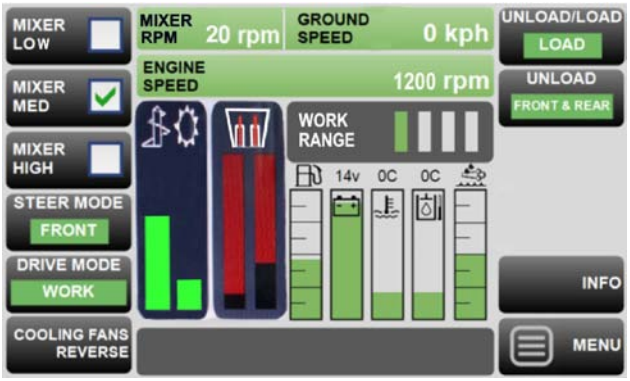
- Moving the joystick backwards will move the machine backward. The more the joystick is moved backward the faster the machine will go to the speed of the Work Range selected.

Work Console, Joystick and Display 223194

- There is a middle position on the joystick which is the neutral position with no movement of the machine.

- The Work Range settings determine the amount of effect the joystick movement has.
  - The Work Range selection is chosen with the up or down buttons on the joystick.

  - The indicator bars under Work Range on the display show which of the 4 ranges has been chosen.
    - See the Menu Section, Operating Settings for setting the Work Mode Range Presets.



Work Drive Mode and Work Range 224094

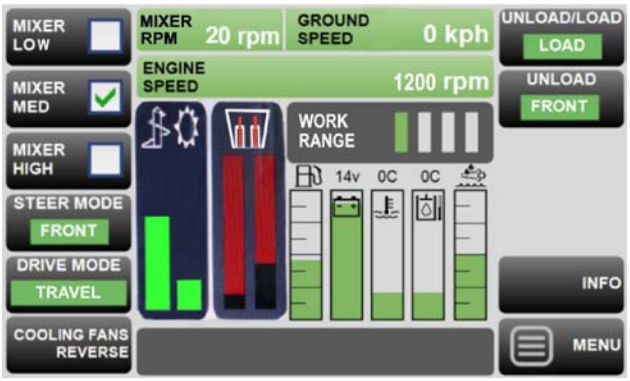
! Travel Mode Joystick Movement

When the machine is set to Travel Mode the joystick controls the direction and speed of movement of the machine.

- Moving the joystick forward will move the machine forward. The more the joystick is moved forward the faster the engine will go and the machine will go within the range of the joystick movement.

- Moving the joystick backwards will move the machine backward. The more the joystick is moved backward the faster the machine will go within the range of the joystick movement.

- There is a middle position on the joystick which the neutral position with no movement of the machine.



Travel Drive Mode 224109

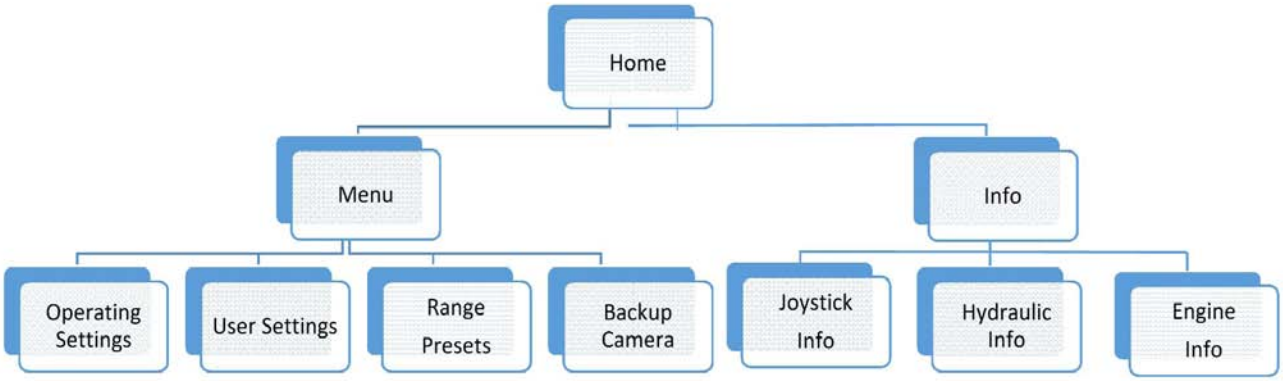
Software Menu Tree

The software in the Display is designed to show a number of screens. The screens offer operational choices with the option to advance to additional screens.

The software menu tree is a visual representation of the display screens.

This menu tree can be used as a reference to navigate to the various screens.

The information given below gives further information about each screen and the choices made on that screen.



Software Menu Tree

224165

Machine Settings from Last Use

The machine will remain in the same modes it was in before the key switch was turned off.

- The drive mode will be the same as it was before machine was turned off.
- The Steering Mode will be the same as it was before the key switch was turned off.

Home Screen

The Home Screen is available from any screen by pushing the Home button located above the selector wheel.

Left Column - Home Screen

! Mixer Speed Selection is made by touching the desired speed.

- A checkmark will appear to confirm the speed has been chosen.

The RPM of Mixer Lo, Mixer Med and Mixer High is set in the Menu Screen.

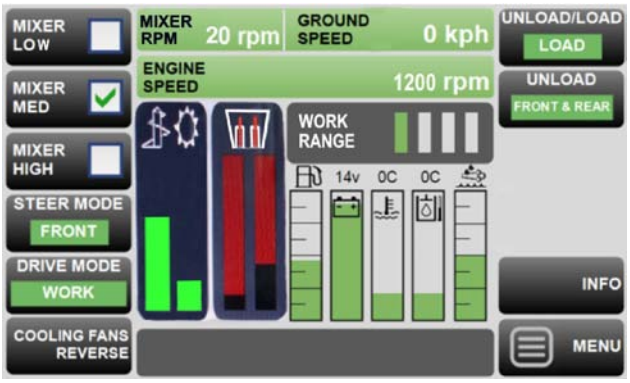
- See the Menu section, Operating Settings for information on setting the mixer speeds.
- The actual mixer RPM is displayed in the top left of the center column

! Steer Mode

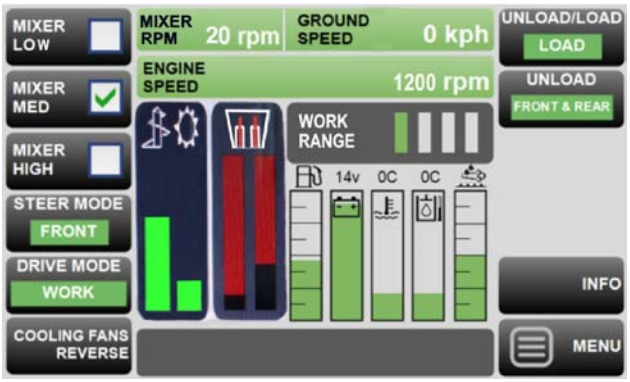
Pressing the Steer Mode button will toggle through Front, Circle or Crab steering.

- Front steer uses only the front wheels for steering.
  - To choose Front Steer the machine needs to be at a full stop.
  - The wheels can be at any angle.
  - Choosing Travel Drive Mode will automatically set the steering to front wheel steer.
  - Front steering is also available in the Work mode.

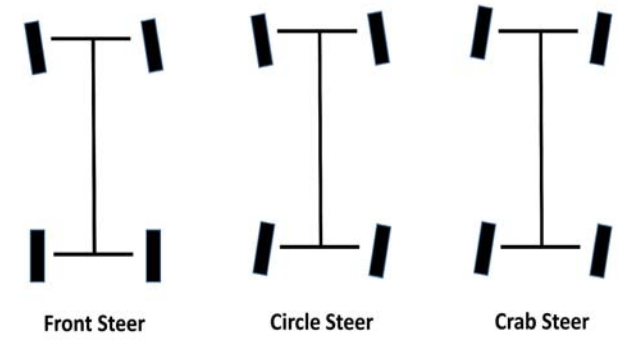
- Circle steer uses the front and rear wheels to steer in a circle.
  - Circle steer is only available in Work Drive mode.
  - The wheels need to be close to centered to engage circle steer.
  - When switching to Work mode from Travel mode, below 5 kph (3 mph), circle steer is automatically chosen.



Home Screen 224094



Steer Mode 224094



Steer Modes 224116

- Crab steer moves the wheels to give some sideways steering.
  - Crab steer is only available in Work Drive mode.
  - The wheels need to be close to centered to engage circle steer.

- Pressing the touch screen button brings a pop up screen menu to choose front steer/circle steer/crab.

- Pressing the rubber button toggles between front, circle or crab.

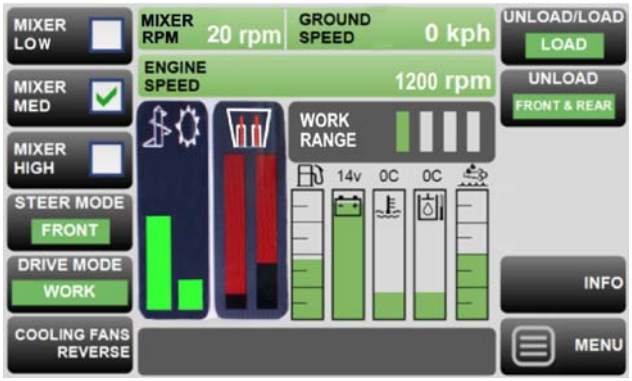
Steer Mode Pop Up 224008

! Drive Mode

Pressing the Drive Mode button will toggle through the choice of Work or Travel mode.

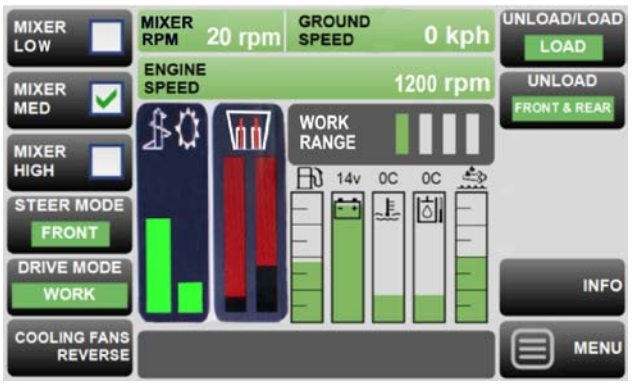
- Work Mode is for when loading the machine.
  - There are 4 user set Work Ranges.
  - For speeds up to 25 kph (15.5 mph).
  - Machine can be going forward to switch between Work mode and Travel mode.

- Travel Mode can be used when moving the machine to the unloading site or loading site.
  - Machine must be stopped to switch into Travel mode from Work Mode.
  - There are no Work Rage presets.
  - For speeds up to 40 kph (25 mph).



Drive Mode 224094

! Cooling Fans Reverse
- Hydraulic Oil Cooling Fan
  - Every 20 minutes of accumulated operating time the controller reverses the hydraulic oil cooling fan for 2 minutes to blow dust and debris out of the cooler. The fan then returns to the cooling mode.



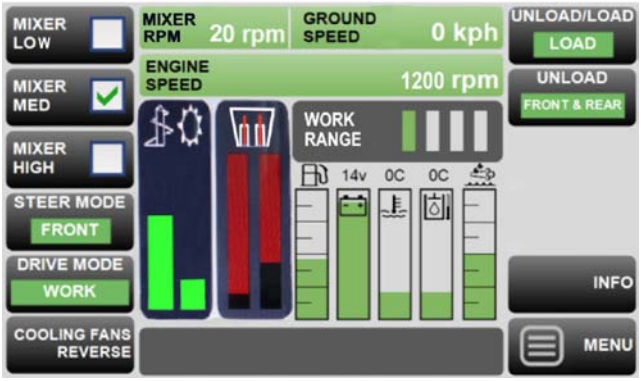
Home Screen 224094

- Pressing the Cooling Fans Reverse button will manually initiate the reversing fan cycle.
- The light beside the reverse button is turned on each time the fan reverses, whether it is automatic or manual.

- Engine Cooling Fan
  - An engine controller reverses the fan periodically to blow dust and debris from the cooler.

  - Pressing the Cooling Fans Reverse button will initiate the Engine Cooling Fan reverse cycle manually.

  - The light beside the reverse button is turned on each time the fan reverses, whether it is automatic or manual.



Home Screen 224094

Center Column - Home Screen

The center column is used to give information on the operation of the machine.

! Mixer RPM

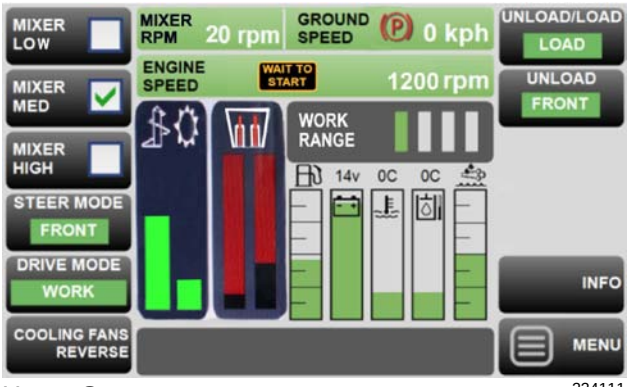
This gives an indication of how fast the mixing screws are actually turning.

- The mixing screw RPM presets are set in the LO, MED and HIGH ranges.
  - See the Menu section, Operating Settings for information on setting the mixer speeds.

! Ground Speed

This gives an indication of how fast the machine is traveling.

- The units of travel speed can be set in the Menu section, Operating Settings.
- When the Parking Brake is active, the parking symbol will show in the Ground Speed bar.



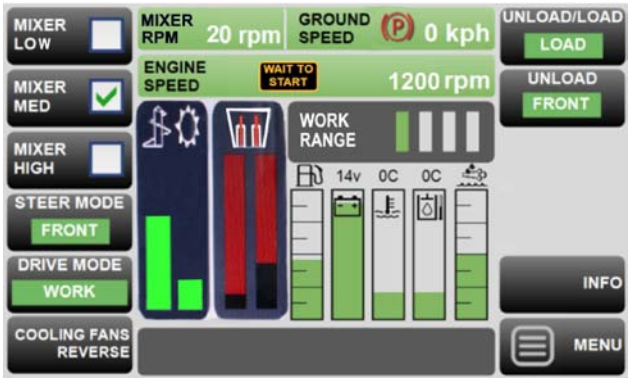
Home Screen 224111

! Engine Speed

This gives an indication of what RPM the engine is operating at.

- "Wait To Start"
  - This message shows in the Engine Speed section when starting the engine.
  - The Wait To Start means that the pre-heaters are working and need time to heat the combustion air.

  Note: The "Wait to Start" may not show depending on the amount of time for display boot up and also on the outside air temperature.

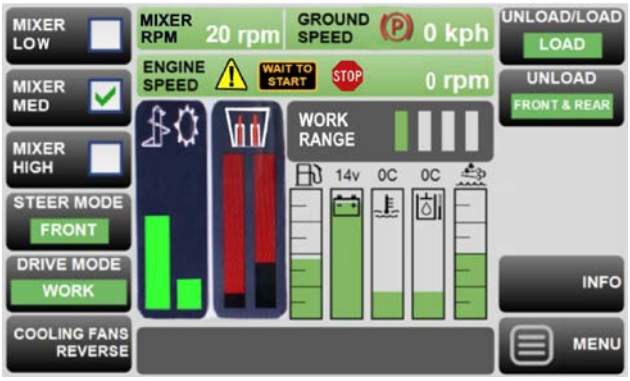


Home Screen 224111

Other Symbols in Engine Speed Bar:

Indicates the engine needs to be stopped for a condition to be corrected.

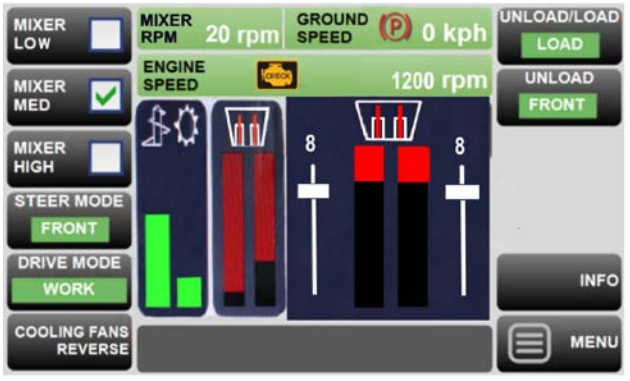
indicates something needs attention.



Alerts Indicate Attention Needed 224095

- "Check Engine" 

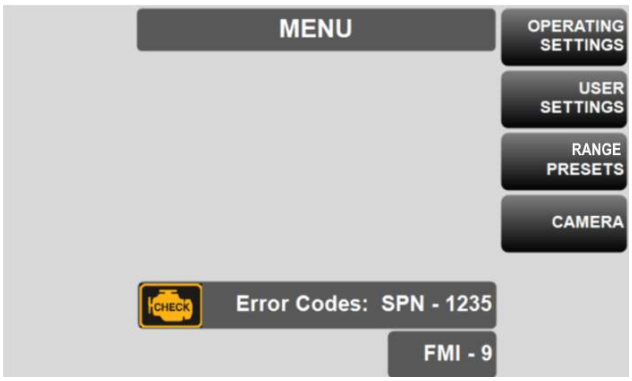
  - The Check Engine symbol appears in the Engine Speed bar.
  - The symbol indicates that there is something that needs to be addressed in the operation of the engine.
  - The first things to check are the engine oil level, coolant level, air filter condition and water in the fuel.



Check Engine Light 223098

- If further assistance is needed, tap on the check engine symbol which will bring up the engine Error Code.
  - The Error code SPN and FMI numbers can be used by the engine technician to determine what is happening in the engine. The codes can also be searched on the internet for further information.

Note: The error code shown in the image indicates the engine air filter is restricted and needs attention.



Engine Error Codes on Menu Screen
(Example Only shown) 224096

Center Column- Overall Information

! Screw Speed Oil Pressure Indicator

- The bar below the screw symbol gives an indication of the oil pressure being used to move the screws.

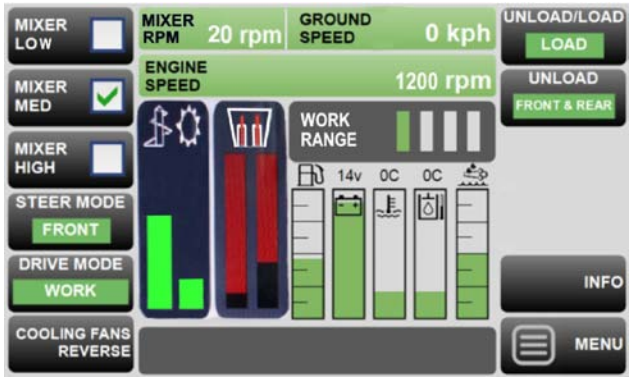
- Keep the pressure in the yellow zone.

- If unable to get the desired mixer rpm, then speed up the engine to get more oil pump flow.

- If the bar under the screw image
  - shows red and the
  - screws are not turning and the
  - screw speed setting is higher than zero

  than it means the material in the tub is preventing the screws from turning.

  - Refer to Section 6 "Removing Settled Material That Is Causing the Mixing Screws To Not Turn" for information about unplugging a settled tub.

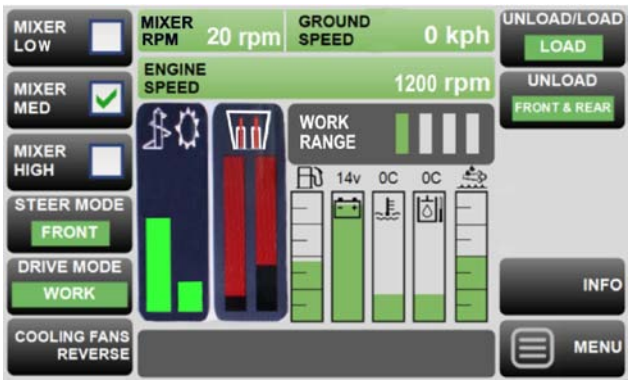


Center Column - Overall Information 224094

- Milling Head Oil Pressure Indicator

  - The bar below the milling head symbol gives an indication of the oil pressure being used to rotate the milling head.

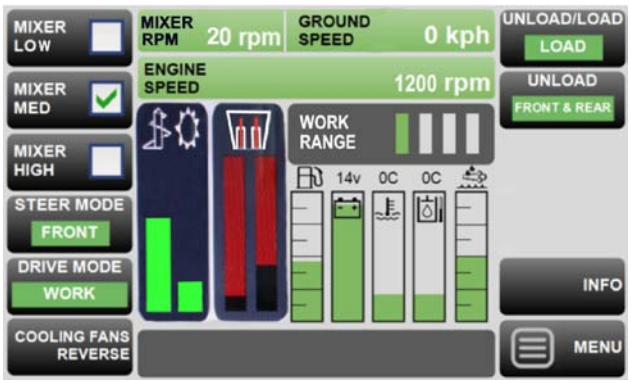
  - If the bar is showing red, then slow down the lowering of the arm to prevent the risk of stalling the milling head.



Center Column - Overall Information 224094

- Amount the Tub Doors are Open

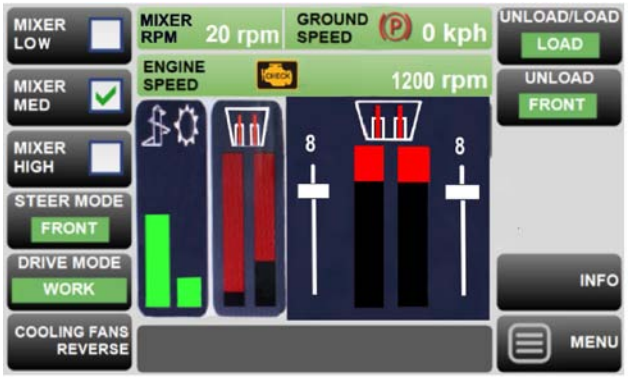
The diagram shows which tub doors are open and how much they are open.



Center Column - Overall Information 224094

  - By tapping on the tub door image it will bring up a screen that allows setting of favorite tub door heights.
    - Move the slider to set a favorite door height setting.
      - Tap anywhere on the screen to save the settings.

  - The favorite tub door setting is activated by using the joystick button to raise/lower the door.
    - The door will stop at the favorite setting.
    - If more movement of the discharge door is desired, press the joystick button again to move past the favorite setting.



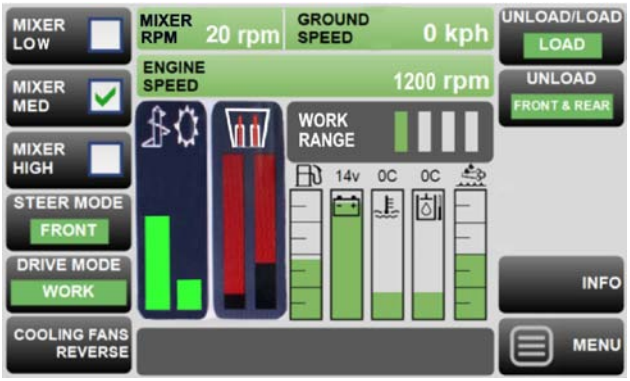
Favorite Discharge Door Settings 224098

! Work Range

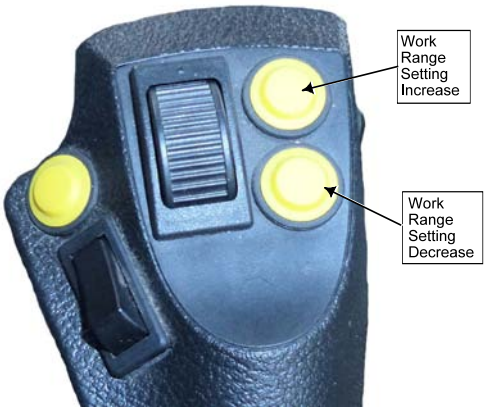
When in Work Drive Mode the effect the joystick has in moving the machine forward or backward can be controlled by 4 different preset speed ranges up to 25 kph (15.5 mph).

Switching between the Work Ranges is done by pressing the joystick upper button or the lower button.

- The indicator bars on the display show which Work Range preset has been chosen.
- The speed range presets are set under the Menu Screen Range Presets.
  - See the Menu Section, Operating Settings for information on setting the Work Mode Range Presets.



Work Range 224094



Work Range Control 223195C

! Fuel Level 

The vertical bar gives a visual indication of the amount of diesel fuel in the tank.

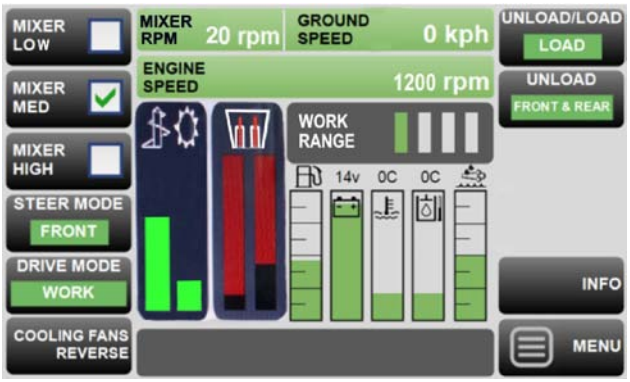
! Battery Voltage 

The numeric readout shows the battery voltage and the vertical bar gives a visual indication of the battery voltage.

! Engine Temperature 

The numeric readout shows the temperature of the engine coolant. The vertical bar gives a visual indication of the coolant temperature.

- If the vertical bar reaches a high point, take action to prevent damage to the engine.



Home Screen 224094

! Hydraulic Oil Temperature 

The numeric readout shows the temperature of the hydraulic oil in the oil tank. The vertical bar gives a visual indication of the temperature of the hydraulic oil.

- If the vertical bar reaches a high point, take action to prevent damage to the hydraulic pumps and motors.

! DEF (Diesel Exhaust Fluid) Fluid Level 

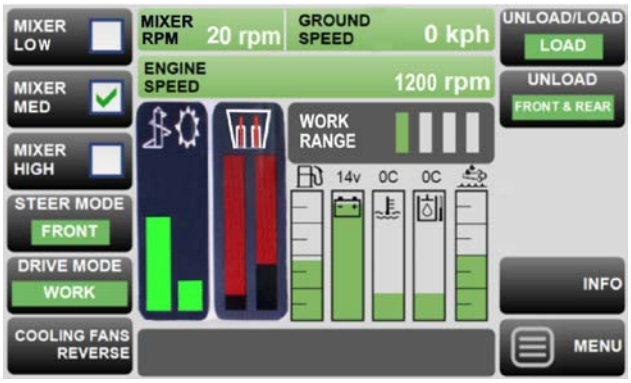
The vertical bar gives a visual indication of the level of DEF in the tank.

- It is important to keep sufficient DEF in the tank. The engine requires DEF to operate correctly.

- If the DEF level goes below 20% level the indicator bar will turn red and a warning will appear in the Engine Speed bar. 

- If the DEF level goes below the critical level, a STOP alert will appear in the Engine Speed bar. 

Note: The engine will derate if DEF runs out completely.



Home Screen 224094

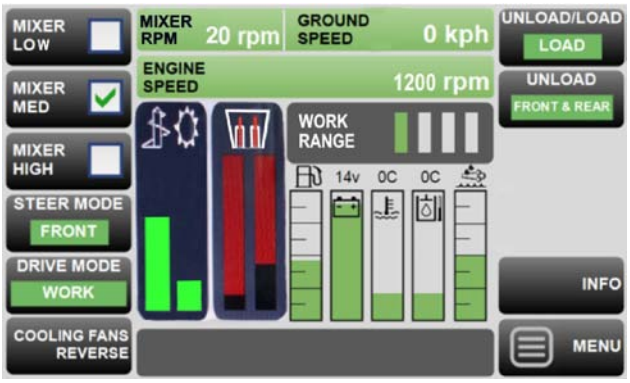
! Bottom Message Bar

This will show messages that require action or give additional information on the operation of the machine.

<u>Some Message Bar Messages</u>

- Must Be in Travel Mode
  - When trying to go above 25 kph (15.5 mph).

- Brake pedal must be depressed
  - When trying to turn off the parking brake the brake pedal must be depressed.

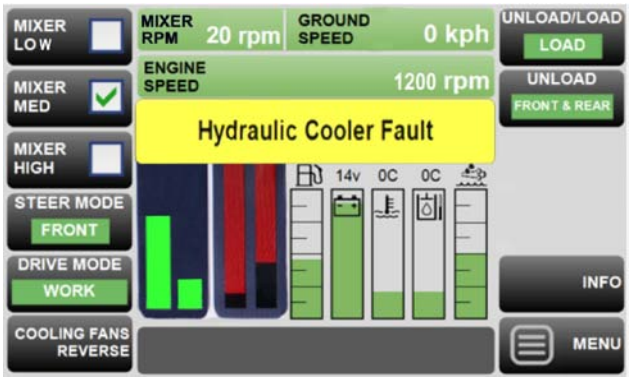


Home Screen 224094

! Warning Message Popup

When there are conditions in the machine that should be given immediate attention a Warning popup will appear on the Display screen in a yellow bar.

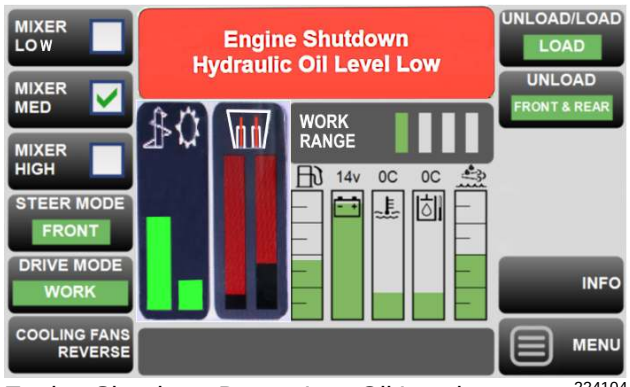
- The Warning messages give an indication as to why the machine is not doing what it is expected to do.
- Take action to correct the situation causing the Warning message.
- Tap on the Warning popup to remove the message from the Display.



Example of a Warning Message Popup 224105

! Engine Shutdown

- This RED warning indicates an <u>immediate</u> automatic engine shutdown is about to occur to protect the hydraulic pumps from insufficient oil in the hydraulic tank.
  - This Shutdown warning comes after the Hydraulic Tank Level Low warning message if the oil level in the hydraulic tank continues to go down.
- If driving when the Engine Shutdown message comes on, immediately pull into a safe place as the machine will come to an <u>abrupt stop</u>.



Engine Shutdown Due to Low Oil Level 224104

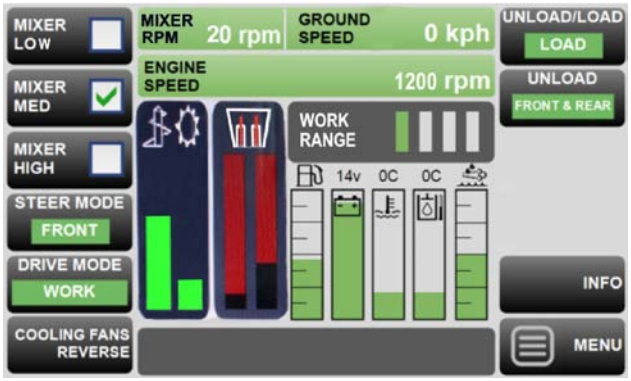
Right Column - Home Screen

! Unload/Load

Pressing this button will toggle the machine into Load or Unload mode.

- Load mode will allow the milling head and conveyer to be activated for loading materials into the tub.
  - The Load functions of the joystick will be enabled.

- Unload mode will allow operation of the tub doors and conveyors,
  - The Unload functions of the joystick will be enabled.



Home Screen 224094

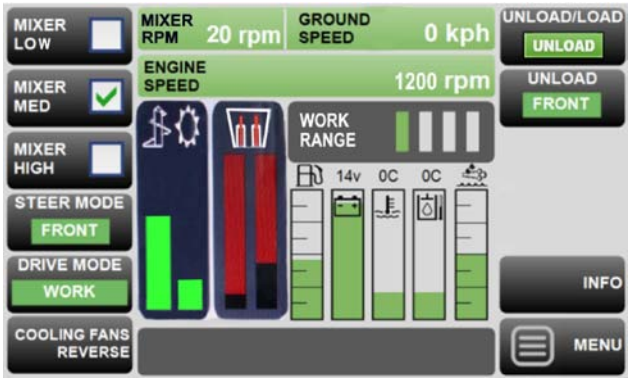
! Unload

Touching this button toggles between where the feed is discharged. The options are:

- FRONT is for discharging feed from the front left tub discharge door onto the unload conveyor or the drop chute.

- REAR is for discharging feed from the right or left rear tub discharge door.

- FRONT & REAR is for discharging from both the front left tub door/conveyor/chute and from the rear tub door/conveyor/chute that is installed.



Home Screen 224115

! Info Button

Pressing the INFO button and using the rotating wheel, the display will show one of the following:

Info Screen - Joystick Buttons Information

Push the Info button on the Display to bring up a picture of the Joystick buttons showing both the Unload and Load functions.

- See the diagrams for detailed descriptions of what the joystick buttons do in the Load and Unload modes.

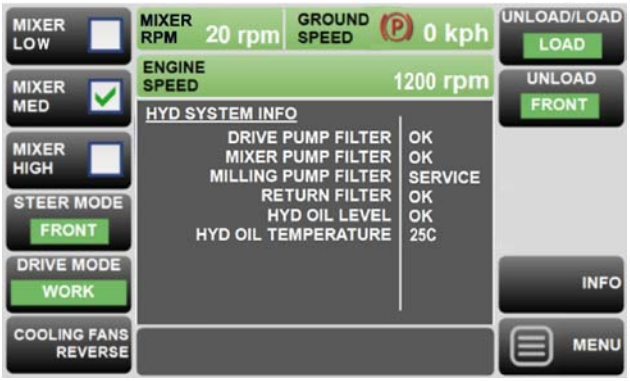
Push Info Button for Joystick Information 224163-2

Info Screen - Hydraulic System Information

Press the Info button and rotate the selector wheel for the Hydraulic System Info screen.

- Drive Pump Filter status
- Mixer Pump Filter status
- Milling Pump Filter status
- Return Filter status
- Hydraulic Oil Level status
- Hydraulic Oil Temperature

  Note: The hydraulic oil temperature should be above 40^0C (104^0 F) for a valid indication of the filter condition.

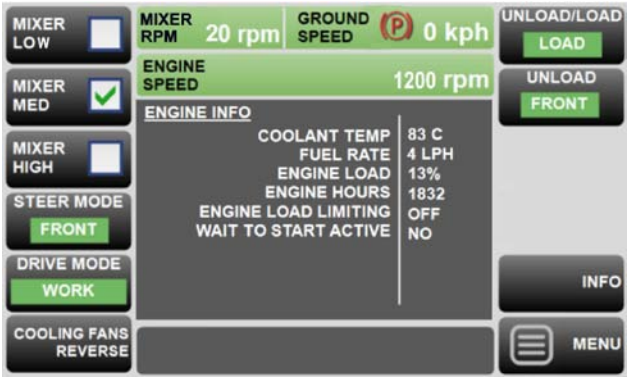


Hydraulic System Information 224099

Info Screen - Engine Information

Press the Info button and rotate the selector wheel for the Engine Info screen.

- Coolant Temperature
- Fuel Consumption Rate
- Engine Load percentage
- Engine Hours
- Engine Load Limiting status
- Wait to Start Active status



Engine Information 224100

To return to the Home page press the Home button which is located above the selector wheel.

Menu Screen

The Menu button brings up options to adjust:

- Operating Settings
- User Settings
- Speed Presets
- Cameras

Menu Screen 224101

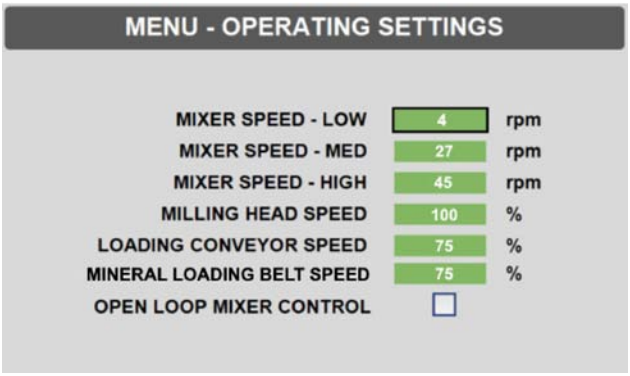
Operating Settings

- Press one of the mixer speed settings to adjust the rpm.
  - Turn the adjustment wheel to set the speed. Push the wheel to enter the value.
  - Press the Home button to return to the Home Screen.

- Press the milling head speed to adjust the percentage of the full speed.
  - Turn the adjustment wheel to set the percentage of full speed. Push the wheel to enter the value.
  - Press the Home button to return to the Home Screen.

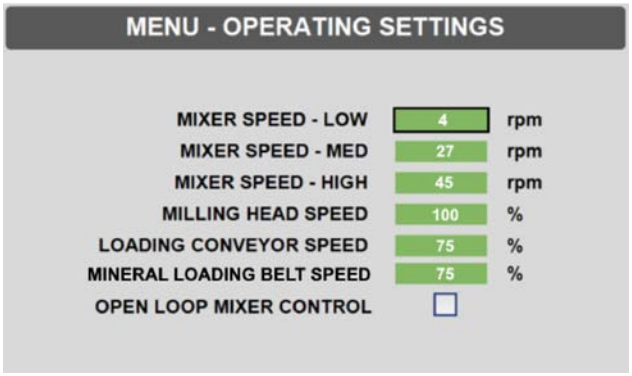
- Press the loading conveyor speed to adjust the percentage of the full speed.
  - Turn the adjustment wheel to set the percentage of full speed. Push the wheel to enter the value.
  - Press the Home button to return to the Home Screen.

- Press the mineral loading belt speed to adjust the percentage of the full speed.
  - Turn the adjustment wheel to set the percentage of full speed. Push the wheel to enter the value.
  - Press the Home button to return to the Home Screen.



Set the Speeds and Open Loop Setting 224107

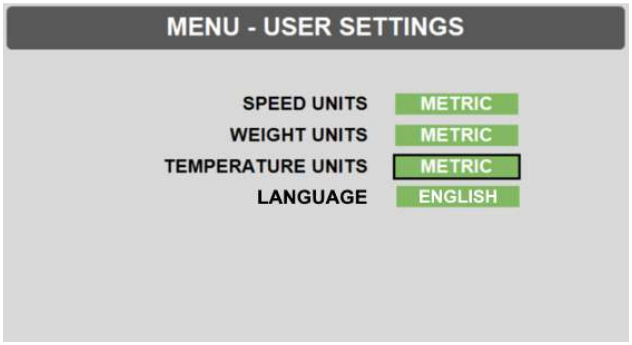
- The mixing screws are normally in closed loop control.
  - If there is a faulty sensor this option in the display allows open loop control mode.
  - Press the Home button to return to the Home Screen.



Set the Speeds and Open Loop Setting 224107

User Settings

- Press the Speed Units to toggle between Metric or Imperial readouts.
- Press the Weight Units to toggle between Metric or Imperial readouts.
- Press the Temperature Units to toggle between Metric or Imperial units.
- Press the Language Units to toggle through the available languages to set what language the Display shows.



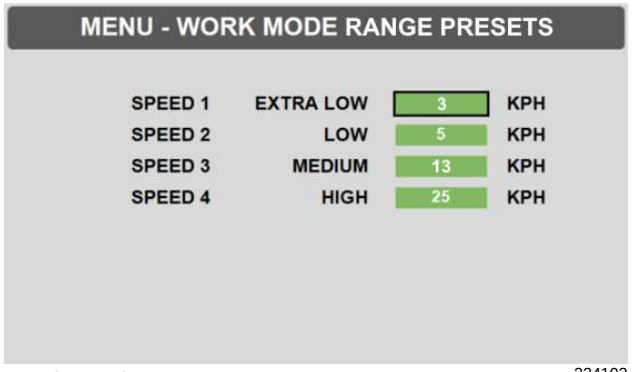
User Settings 224102

Work Mode Travel Speed Presets

Adjusting the Work Mode Range Presets determines the top speed for each speed range.

To set the Work Mode drive travel speed range presets:

- Press Menu.
- Press Range Presets.
- Use the wheel to choose which speed range to adjust.
  - Press to select.
- Turn the adjustment wheel to adjust the speed.
- Press the adjustment wheel to set the speed.
- Press the Home button to return to the Home Screen.



Work Mode Range Presets 224103

Cameras

There are cameras in various locations of the machine.

The Back-up Rear View Camera, the Right Hand Side camera (if the arm is installed) and the Tub View camera are standard on the machine.

- The Right View Camera is a forward looking camera to allow for greater visibility when driving and approaching intersections.
  - If there is no loading arm on the machine, then there is no Right View Camera installed.
- The Tub View Camera is a rearward looking camera to show the inside the tub while material is loading and mixing.
- The Rear View camera is used when backing up or to check if anything is behind the machine.

The optional "360^0 Bird's Eye View" camera is to give a picture of what is around the machine.

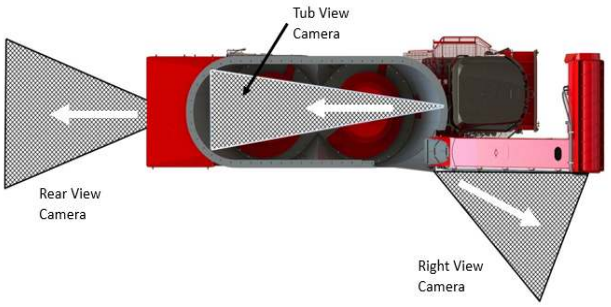
The cameras are viewed in the cab on:
- Separate Camera Monitor
- Backup Camera shown in Display

1. Separate Camera Monitor.

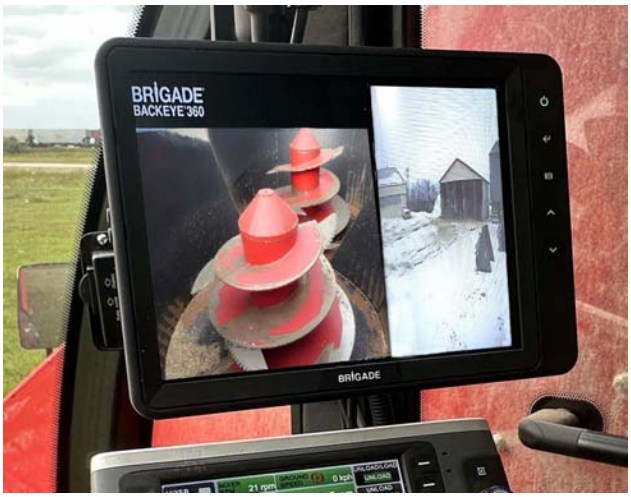
   - The separate camera monitor is located above the machine display.

   - The monitor view can be adjusted to show the different cameras mounted on the machine.

   Note: Refer to the camera Monitor Operation manual for control information.



Cameras on the Machine 220042P2



Separate Monitor - Tub Camera View and Rear View Shown 223315

Example of Camera Display - Right View and Optional Birds Eye View 223412

2. Backup Camera shown on the Display.

   - The Rear View Camera is turned on when the machine is placed in to reverse using the joystick control.
     Note: Rear View Camera is not in the display if the Birds Eye View camera is installed.

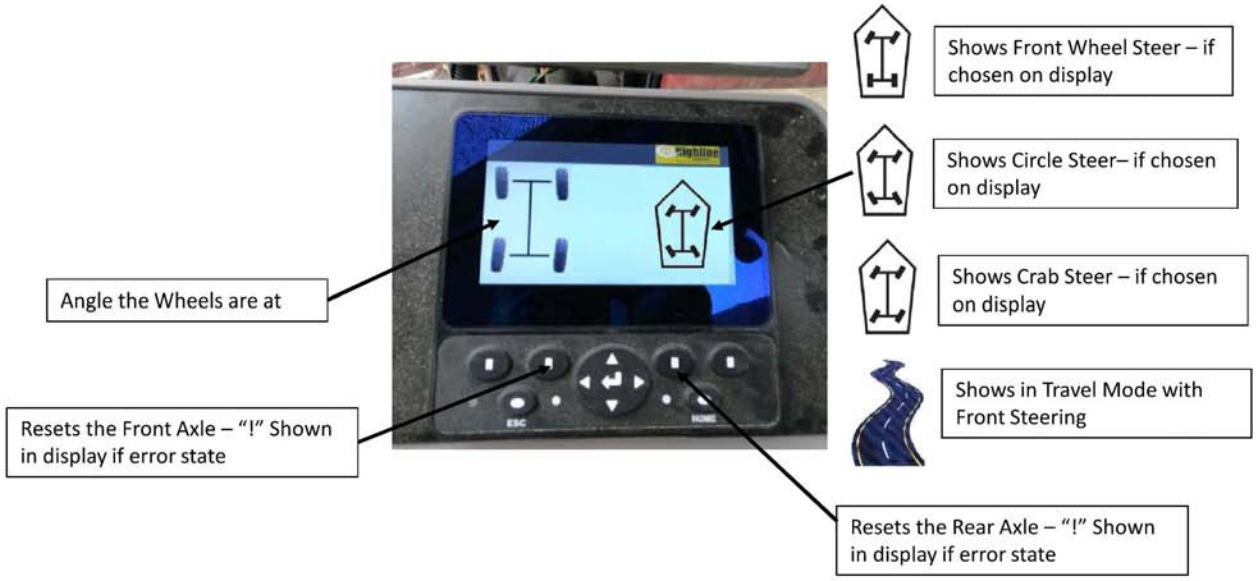
   - When the joystick is moved to the reverse position, the backup camera view is shown on the main display.

Backup Camera in the Main Display 224106

Steering Display

A Steering Display is mounted in the cab console.

The display functions are shown below in the diagram.



Steering Display 224168

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Table of Contents for Section 4 - Preparing to Use the AccuMix AMX1000s

Note: The directions left, right, front and rear are as seen from the driver's seat facing forward.

Preparing to Use the AccuMix AMX1000s

1. Clean debris from all the screens on the engine cover.

   - Clean all the screens on the left side of the engine cover.

Clean Left Side Screens 223274

   - Clean all the screens on the rear of the engine cover.

Clean Rear Screens 223275

   - Clean all the screens on the right side of the engine cover.

Clean Right Side Screens 223276

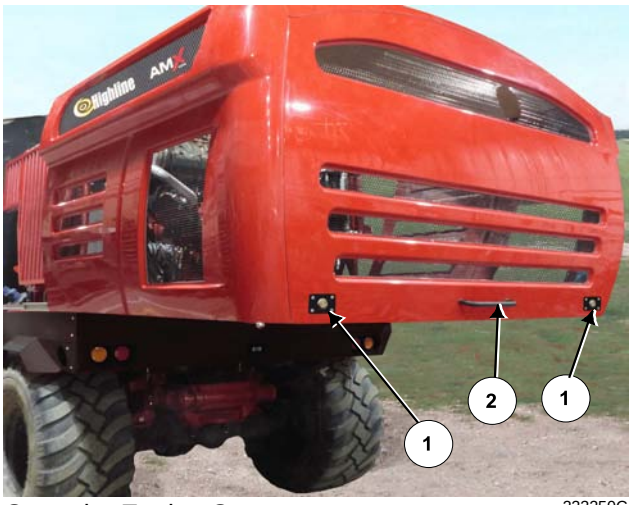
2. Trash and debris

   Each day remove all trash and debris from around and on any hot components such as the exhaust, engine, turbo charger, oil tank, pumps and cooling system.

   Keep these areas clean to avoid the possibility of fire and overheating.

3. Open the engine cover.
   - Remove the 2 engine cover pin retainers (1).

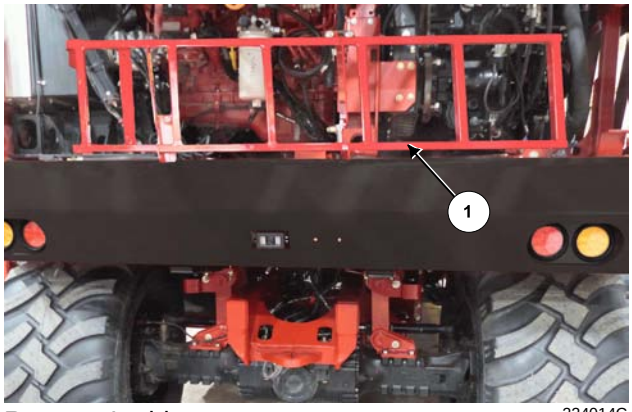
   - Pull the cover backwards with the handle (2) to open the cover on the slides.



Open the Engine Cover 223250C

4. Use the ladder (1) in the engine compartment to access the engine and pump area.

   - Lift the ladder (1) from the ladder supports located at the rear of the engine.



Remove Ladder 224014C

   - Place the ladder into the notches in the frame to access the engine and pumps.

     - There is 2 set of notches for the ladder to go into the frame.


Use Ladder to Access Engine and Pumps 224013

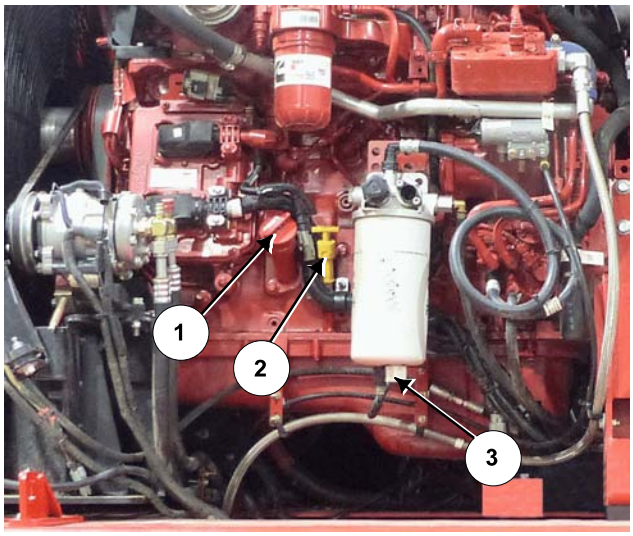
5. Check the engine oil level.

   - After the engine has stopped, wait for 10 minutes to allow the oil to drain into the pan.

   - Use the dipstick (2) to check the oil level.

   - Fill with diesel engine oil at the fill cap (1).

   Note: Refer to Section 7 - "Maintenance" for determining the viscosity of the oil and Section 9 for the type of oil to use based on weather conditions.

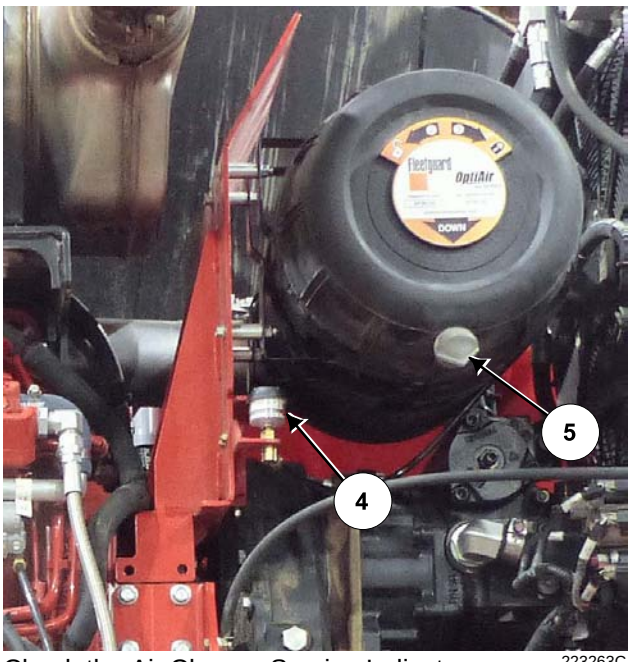


Check the Engine Oil Level
Drain Water Separator
223252-2

6. Drain the fuel system filter/water separator (3).
   - Remove water that has collected.

7. Check the air cleaner restriction indicator (4).
   - The indicator shows a red band when the air filters need to be changed.

   Note: Refer to Section 7 - "Maintenance" for instructions on changing the air filters and resetting the indicator after the filters are changed.



Check the Air Cleaner Service Indicator
223263C

8. Squeeze the rubber nozzle (5) on the front of the air cleaner to remove large particles and moisture.

9. Check the oil level in the pump drive gearbox case.

   - Remove the fitting (1) to check the dipstick for the oil level.

   - Fill with gear lube 75W90 synthetic oil with EP additive through the hole (1) if needed.

   - Replace the dipstick fitting (1).

10. Replace the ladder into the storage brackets in the engine compartment.

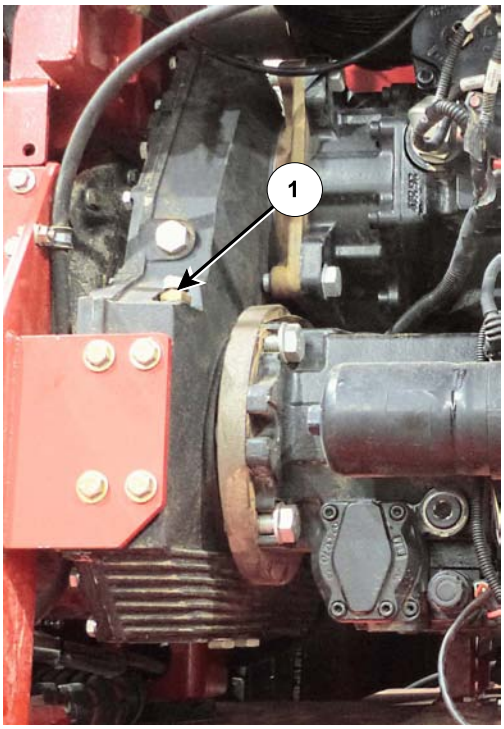
11. Visually check the hydraulic oil level in the oil tank by looking at the oil level sight glass (5) and compare the oil level to the decal.

   - Check the level when the oil is cold and the machine is level.

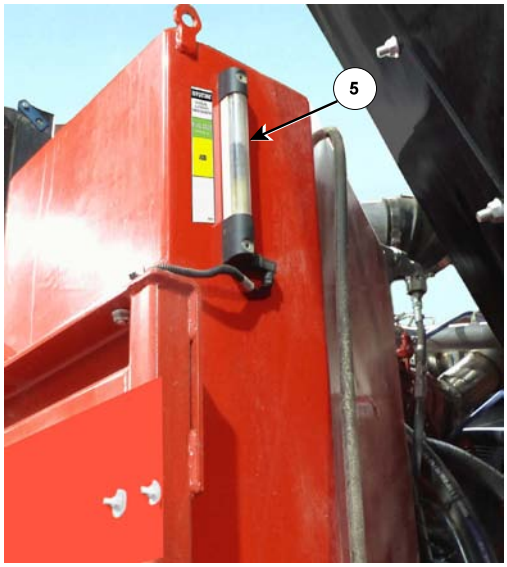
     Note: The display in the cab will give a notification if the oil level goes to low level.

     Note: If the oil level in the tank continues to drop below a sensor in the tank, the machine will immediately shut down the engine to protect the hydraulic pumps. The machine will come to an abrupt stop. The display will give a large red notice that the engine has shut down.

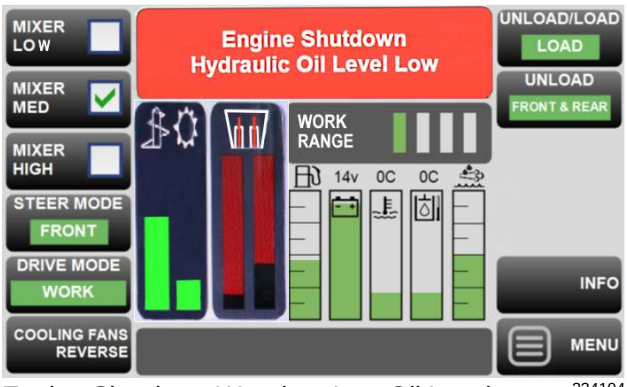
   - Fill with hydraulic oil if needed.
     - Only use the hydraulic oil specified in Section 9 "Specifications".



Check Oil Level in Pump Gearbox 219225C



Check the Oil Tank Level 223265-2C

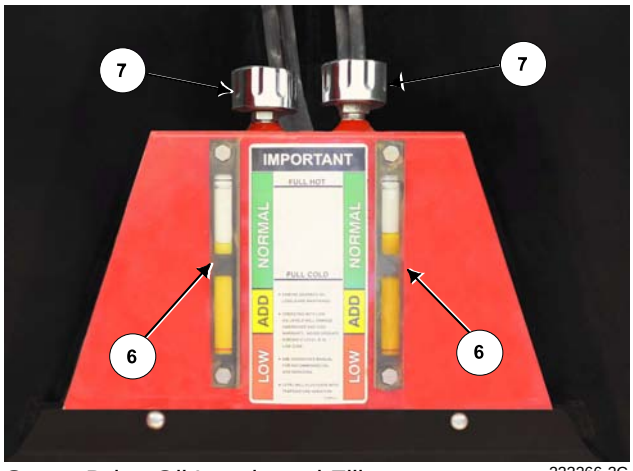


Engine Shutdown Warning- Low Oil Level 224104

12. Visually check the oil level of the screw drive boxes.
    - Oil level indicators (6) are located on the oil tanks which are located on the left side of the tub.
    - Check the level when the oil is cold.

      Note: The oil level will fluctuate with temperature variation.

    - Compare the oil level with the decal.
      - The best operating level is indicated by the green "NORMAL" color on the decal.
      - When the oil level is in yellow "ADD" zone, add oil.
      - If the oil level is in the red "LOW" zone, add oil immediately.
        - Also check as to why there has been a loss of oil.
    - Fill with oil through the removable fill cap (7) with EP150 Synthetic oil.



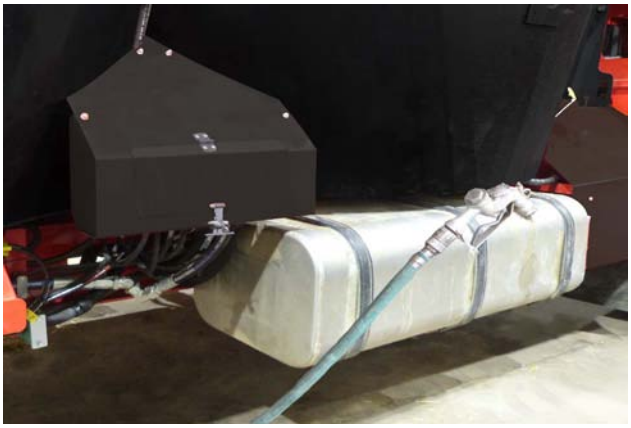
Screw Drive Oil Levels and Fill 223266-2C

13. Filling the fuel tank.

Do not refuel the machine while smoking or near an open flame or sparks.
Do not fill the fuel tank when the engine is running.
Wipe up spilled fuel immediately.
Failure to comply could result in death or serious injury.

The fuel tank and cap are located on the right side of the machine under the front tub.

- Keep the area around the fuel tank filling hole clean of debris in order to prevent contamination of the fuel tank.


Fill Fuel Tank - Ultra Low Sulfur Fuel 223267-2

- Fuel grades for the Cummins Engine:

  - Only use ultra low sulfur fuel. Diesel fuel quality and sulfur content must comply with all existing emissions regulations.

  - Number 1D ultra-low sulfur diesel ASTM S-15

  - Number 2D ultra-low sulfur diesel ASTM S-15

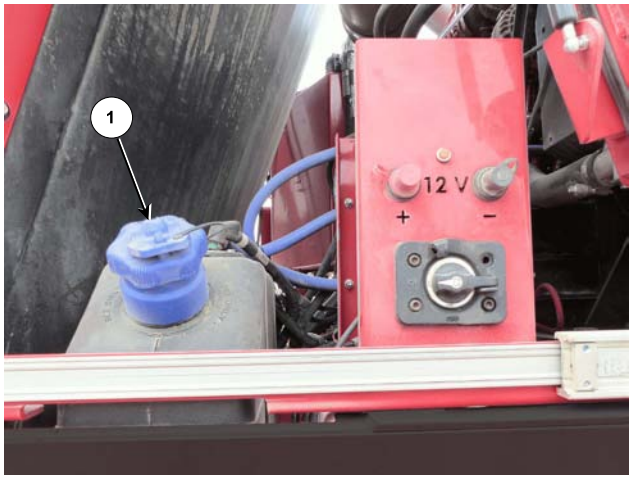
    Consult with the local fuel distributor for properties of the diesel fuel available.
    Note: Refer to the Owners Manual for additional information.

- Replace the fuel cap before operating to prevent moisture from entering.

- Fill the fuel tank at the end of each day's operation to prevent water condensation and freezing in the tank.

14. Fill the DEF tank (1) each time the fuel tank is filled.

    - If fuel is added, DEF needs to be added.



Fill DEF Tank at Each Fuel Fill 223271C

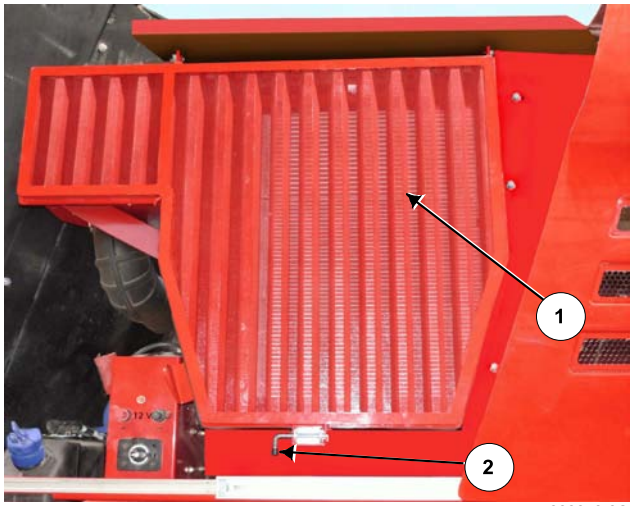
15. Clean the screens of the engine cooler.

    Note: After 20 minutes of operating time the engine cooler fan will reverse to blow dust and debris out of the cooler.

    The operator can initiate the fan reversing by pressing the Cooling Fans Reverse button on the display. It is recommended to increase the engine speed before reversing the fan to increase the air flow. The engine fan is driven by the engine.

    - With the engine cover open, clean the outer engine cooler screen (1).
      - Use a broom, low pressure air and a pressure washer to clean the screens.

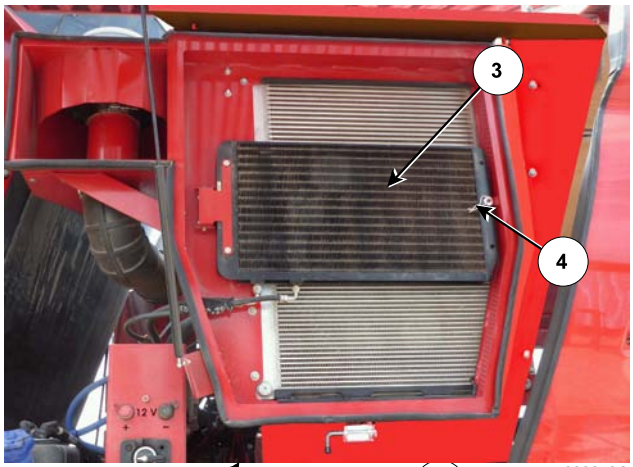
    - Lift the outer screen by pulling the latch (2) to release the screen.
      - The screen uses a gas strut to assist in lifting.



Clean Outer Engine Cooler Screen 223242-3C

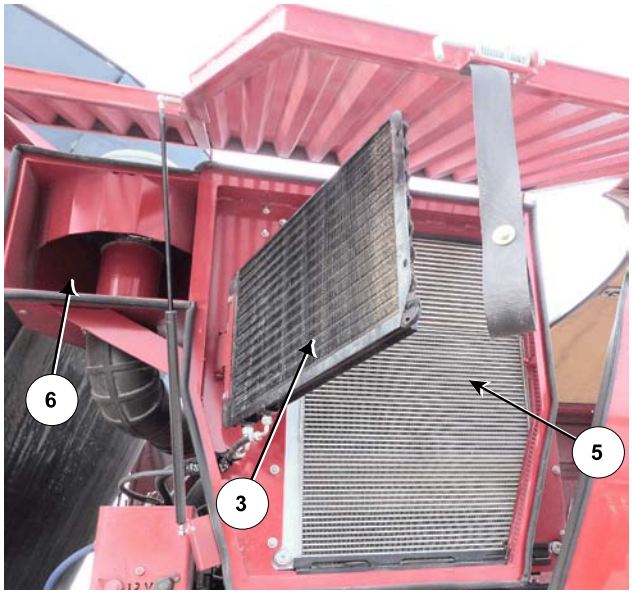
16. Clean the air conditioning radiator (3).
    - Use a broom, low pressure air and a pressure washer to clean the screen.
      - Be careful not to bend the fins of the radiators.

    - Move the air conditioning radiator by removing the clip pin (4).



Clean Inner Radiator and Screens 223272C

- Clean the engine radiator (5).
  - Use a broom, low pressure air and pressure washer to clean the screen.
    - Be careful not to bend the fins of the radiators.



Clean Engine Radiator, Air Conditioning Radiator and Air Pre-cleaner Box 223273C

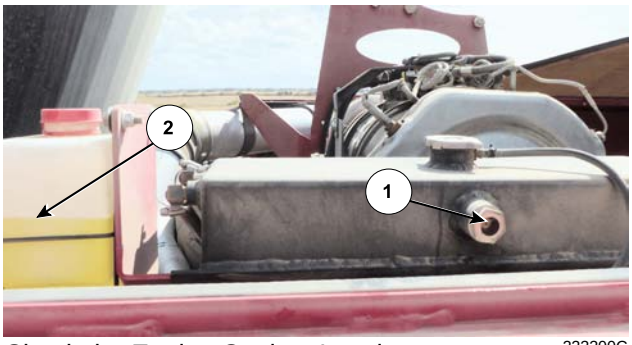
17. Check that the air pre-cleaner box (6) is free from any build up of material.

- Clean the bottom screen of the pre-cleaner.

18. Check the engine coolant level.

Avoid contact with hot surfaces.
Contact may result in minor injury.

- Look into the sight glass (1) built into the radiator to see if coolant fluid is visible.



Check the Engine Coolant Level 223300C

Do not open the engine radiator cap while the engine is hot. The radiator contains hot fluid under pressure.
Contact with hot fluid could result in serious injury.

- If coolant needs to be added, wait until the radiator is cool before removing the radiator cap.
  - Add coolant directly into the radiator until it is visible in the sight glass.

- Top up the overflow container (2) to the appropriate level.

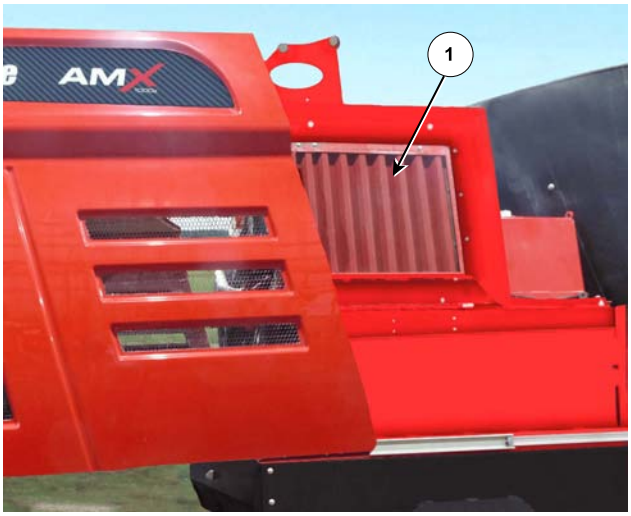
19. Clean the oil cooler screen (1) on the right side of the machine.

    Note: After 20 minutes of operating time the oil cooler fan will reverse to blow dust and debris out of the cooler and then turn forward for normal cooling.

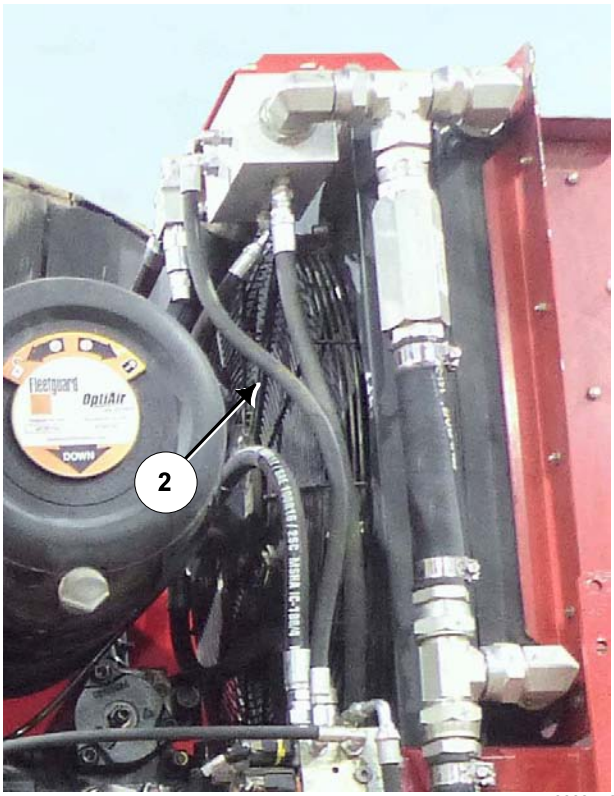
    The operator can also initiate the fan reversing by pressing the Cooling Fans Reverse button on the display.

- Use a broom, low pressure air and pressure washer to clean the screen (1).

- Clear debris from the fan (2) that is mounted on the backside of the oil cooler.



Clean Oil Cooler Screen 223240C



Clear Debris from Oil Cooler Fan 223277C

20. Check the oil level in the milling head drivebox.

- Lower the milling arm so that the milling head gearbox has its fill plug (3) facing up and the sight glass (4) is on the side.

Stand clear of the loading arm when it is lowering. Contact with the loading arm while lowering will result in death or serious injury.

- Check the oil level by viewing through the sight glass (4) to see if oil is visible.

- Check the breather is clean (5).

- Add oil through the top plug (3).
  - Fill with Synduro SHB 220 Synthetic oil.

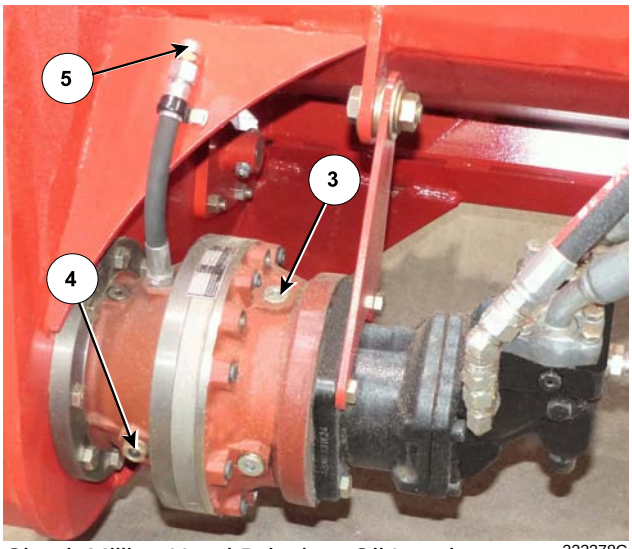
21. Check the condition of the milling head and auger.

Contact with the moving milling teeth and auger will cause serious injury or death.
Keep hands out of the cutting area of the loading arm when the drum is rotating.
Set the park brake, lower the loading arm to the ground, shut off engine, remove the key, and wait for all parts to stop turning.

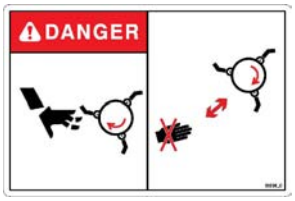
- Check the milling head teeth.

- Remove any built up materials from the milling head.

- Check that the auger area behind the milling drum is clear.



Check Milling Head Drivebox Oil Level 223278C




Check the Condition of the Milling Head 223279

22. Check the milling head belt drive area.

Contact with the moving belt or sheaves may cause serious injury or death.

Keep away from moving parts.

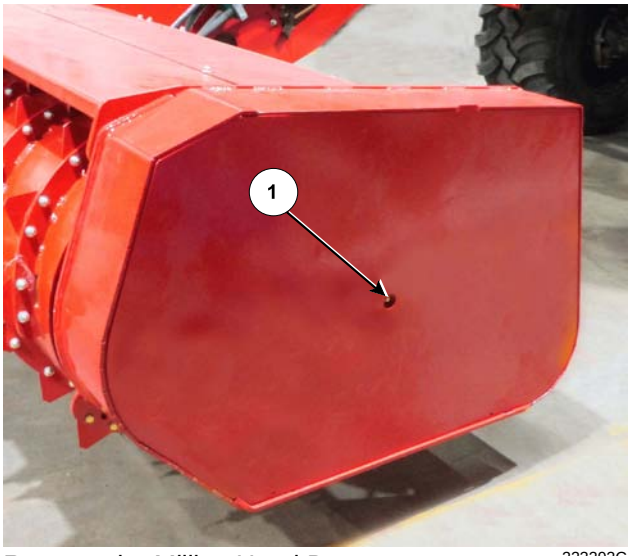
- Remove the nut (1) holding the milling head guard door.

- Remove the guard door.
  - Check that the area is free of material.
  - Check that the drive belt is in good condition.

- Check the tension of the lower tension spring.
  - The length of the threaded rod (2) is to be 3-1/4" from the end of the rod to the spring retainer.

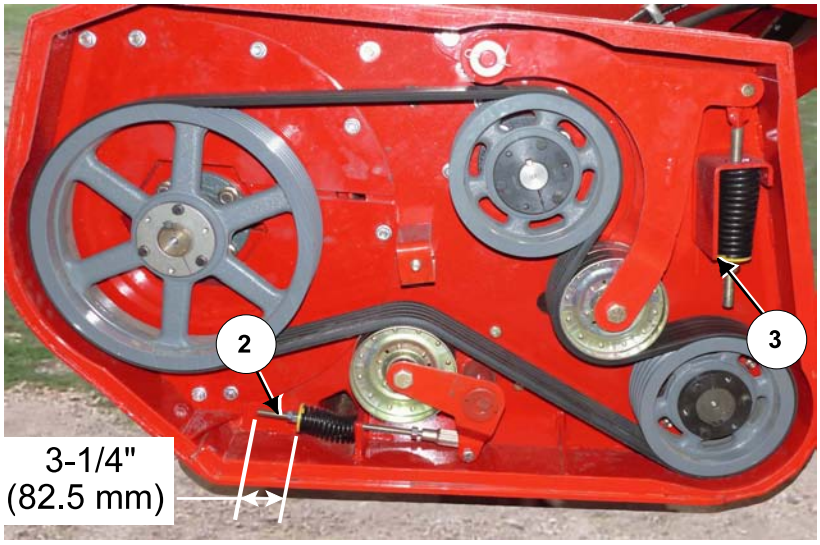
  Note: Ensure the threaded rod is tightened into the clevis.

- Check the tension of the upper tension spring.
  - The spring retainer washer (3) is to be flush at the bottom of the bracket.



Remove the Milling Head Door 223292C

See Section 7 "Maintenance" for Adjusting the Belt Tension and Changing the Belt.



Check the Milling Head Drive Belt
Check the Tension of the Belt Springs 223280

23. Check the condition of the loading arm conveyor belt.

    - Check the tracking of the loading belt.

    Note: See Section 7 "Maintenance" for adjusting the tightness and tracking of the loading conveyor.

    - Open the mineral loading hatch located on the top of the loading arm.
      - Lift the hatch lid up to see the loading belt.

    - With the conveyor not moving:
      - Look for separation of the lugs from the conveyor belt.
        - Any lugs that are almost completely separated from the conveyor fabric can be cutoff. Be careful to not harm the conveyor fabric.

    - Check the condition of the wooden side rails.

Lift Mineral Loading Door for Access to Auger and Loading Paddles 220071

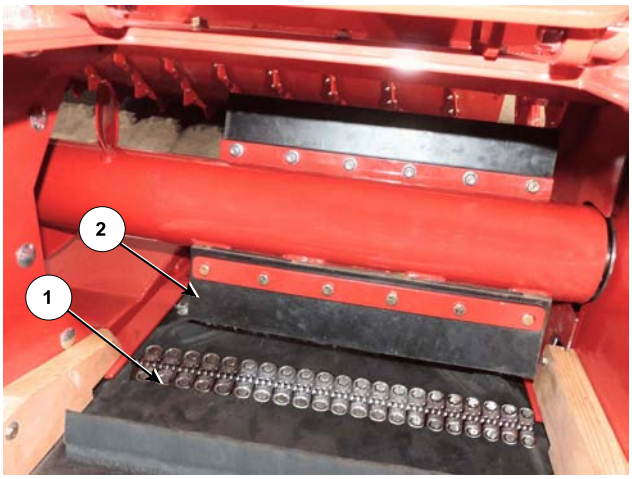
Check the Condition of the Loading Belt and the Wooden Rails 223417

24. Check the condition of the conveyor web connection (1) by looking through the mineral loading hatch.

    - Check that the web loops are not tearing out of the conveyor fabric.

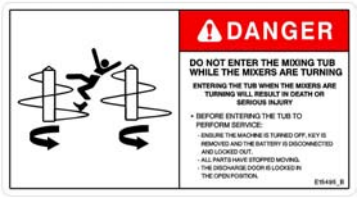
25. Check the condition of the milling head auger and loading paddles (2) by looking through the mineral loading hatch.
    - Check that the loading paddles are securely fastened.

    - Remove any twine/wrap or other buildup wrapped around the auger.



Check the Conveyor Web Connections
Check the Auger and Paddles 223298C

26. Visually check that the tub does not have any build up or foreign material in it.



Do not enter the tub while the mixers are turning.

Entering the tub when the mixers are turning will result in death or serious injury.

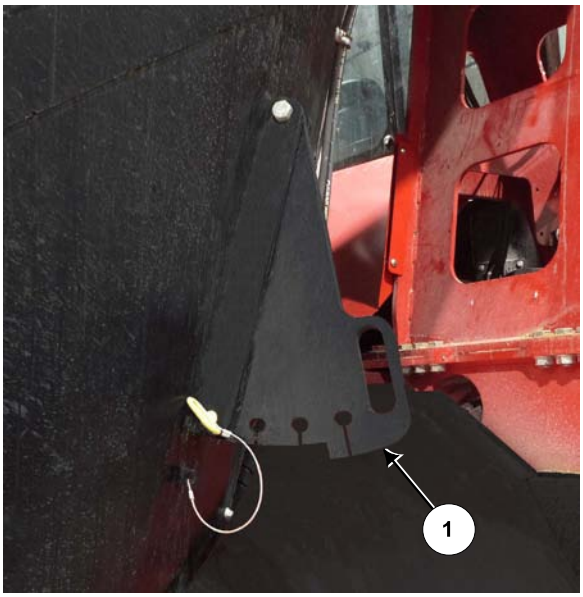
Do not lean over the mixing tub while the screws are turning to avoid the danger of falling into the tub.

Do not enter the tub with material in the tub.
The material is unstable and may cause entrapment.
There is no means of exiting the tub when the tub is full.

Check for Build Up in the Tub and Condition of the Screws (Optional Knives Shown) 223017

27. Visually check that the screws are in good condition

28. If it is desired for the screws to do additional cutting of long material, move the aggression bars (1) into the tub and fasten in place.



Adjust Aggression Bars 223229C

29. Check the condition of the cutting knives on the screws.

Do not enter the tub while the mixers are turning.
Entering the tub when the mixers are turning will result in death or serious injury.

- Check that the knives are fastened tightly to the screws.

Note: See Section 7 "Maintenance" for more information on the knives.

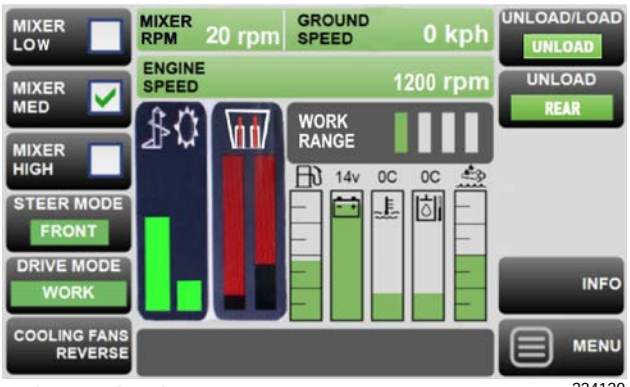
Check the Knives on the Screws 224157

30. If it is required to enter the tub, do the following:

Being trapped in the tub with mixers turning will result in death or serious injury.

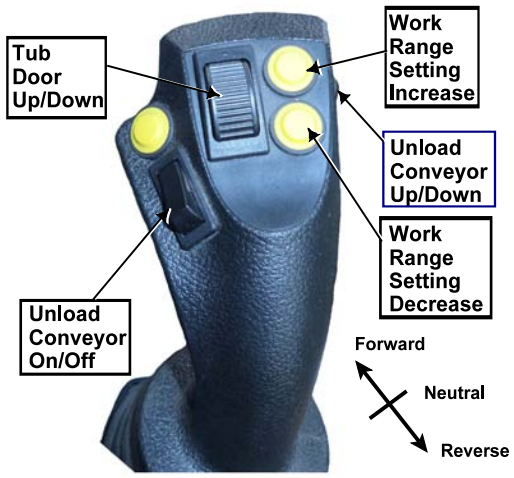
Before entering an empty tub to perform service ensure all parts have stopped moving.

- Start the engine.
- Select Unload on the Display.
- Select Unload Rear.



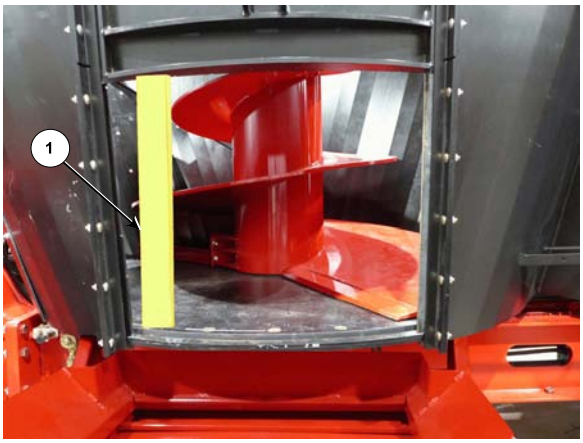
Select Unload Rear 224120

- Use the joystick to raise the tub door.



Joystick Unloading Functions 219211

- Place a support (1) to ensure the door will not accidently close causing entrapment.



Raise a Door to Enter Tub 223198

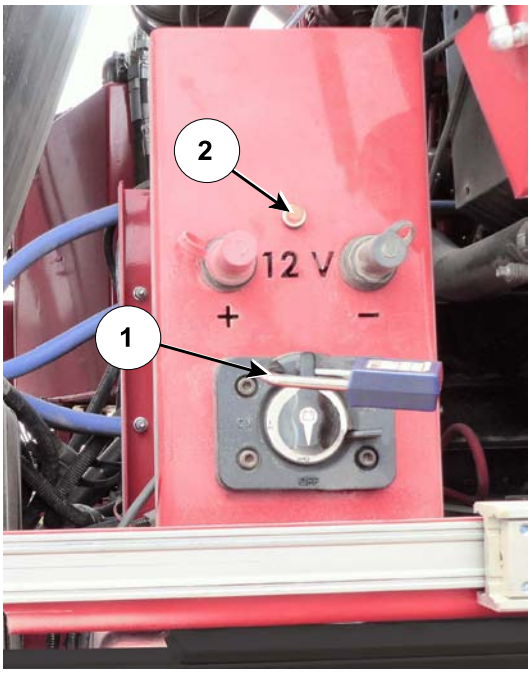
- Turn the machine off and remove the key.

- Turn the battery disconnect switch to the Off position and fasten in place with a lock (1).

  Note: If the engine has been running, wait until the amber light (2) has gone out before turning the battery switch to "Off".
  - The amber light indicates the engine needs to complete an emissions cycle.
  - When the amber light (2) goes out then the cycle is complete.

  - Lock out the battery switch (1) to prevent accidental starting of the machine that might cause the lowering of the tub door with someone in the tub.

  - Wait until all parts of the machine have stopped moving before entering the tub.



Turn Off Battery Switch
Lock in the Off Position 223299C

31. Check that the ladder to the cab works.

Keep people back when the ladder is moving.
The ladder can move quickly when the parking brake is turned on.
Contact with a moving ladder may result in minor injury.

Note: The ladder switch is located on the front outside of the cab platform above the front right tire.

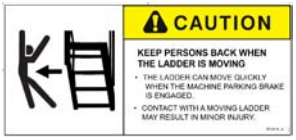
- To move the ladder outward for climbing to the cab, move the switch to the Operate position.
  - For the parking brake to operate the ladder, the switch must be in the Operate position.

- To move the ladder to the inward position when not using the machine, move the switch to the Retract position. Having the ladder retracted is useful for clearance around the machine or when shipping the machine.

Parking Brake Operation of the Ladder

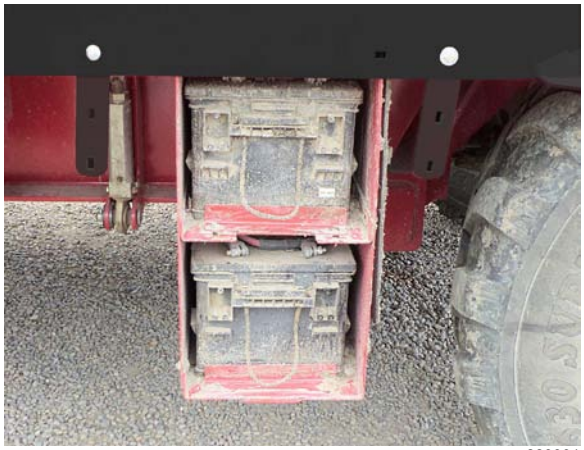
- The ladder will move out when the switch is in the Operate position and the parking brake is turned on.
  - The foot brake must be pressed to activate the parking brake.
- The ladder will move inward when the switch is in the Operate position and the parking brake is turned off.

32. Check the condition of the batteries.
- Remove the panel ahead of the left rear wheel.
- Check that the battery cables are securely attached.
- Check that the cables make a good electrical connection to the battery posts.



Ladder Switch 224246

Check the Cab Ladder Moves 223319



Check the Condition of the Batteries 223301

33. Check the condition of the tires.

Ensure the machine is turned off and the key is removed.
Tires can steer towards the frame causing death or serious injury.
Tires can begin moving and run over a person resulting in death or serious injury.

- Check that the tire sidewalls and treads are in good condition.

- Fill the tires with air to these pressures:
  - BKT tires to 70 psi (483 kPa).
  - CEAT tires to 78 psi (538 kPa).

Check the Condition of the Tires 223308

34. Turn the key in the cab to the run position.

- Do not start the engine.

Turn the Key to the Run Position 223309

35. Check that the display is working.
- Check all the screens of the display.

Check the Display is Working 223310

36. Check the diesel exhaust fluid (DEF) level indicated on the display.

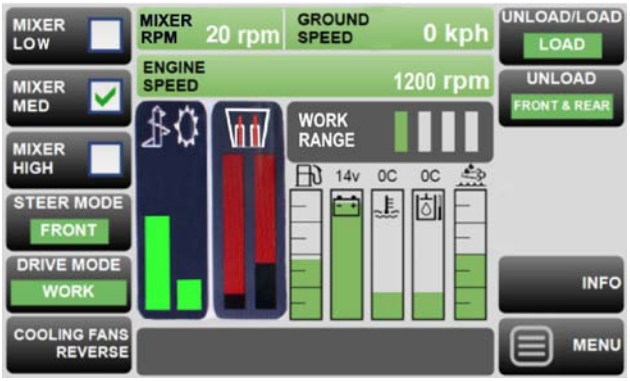
- The display in the cab has a gauge to indicate the amount of DEF in the tank.
- The DEF level indicator bar will turn red when the DEF level is below 20% full.
- The display also has a low DEF level warning indicating there is less than 20% fluid in the tank.

Note: If the DEF tank runs out of fluid it will lead to different stages of derating of the engine.

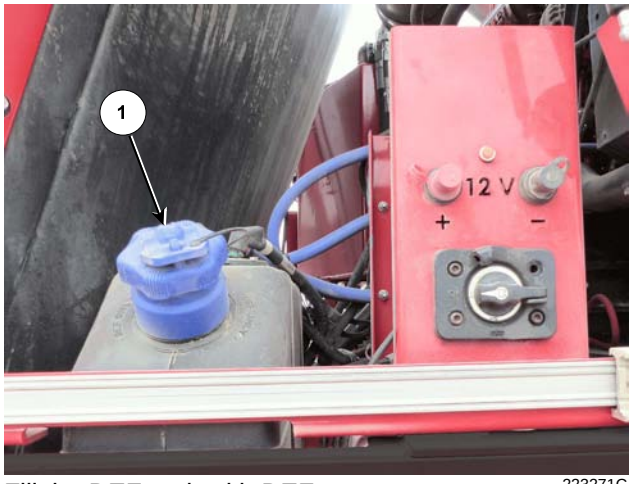
Use caution when handling DEF:
Do not breathe DEF vapor or mist.
- Do not spill on hot components which may cause the release of ammonia vapors.
- Do not eat, drink or smoke when using DEF.
- Avoid DEF contact with eyes, skin and clothing.
- Wash thoroughly after handling DEF.

- Fill with DEF that is compatible with Tier IV diesel engines.
  - Fill the DEF tank through the fill cap (1).
  - Be careful to not spill DEF fluid.

Note: Wipe up any DEF spills and rise with water.
- When the water contained in DEF evaporates it will leave material that is corrosive to paint and metal.



Check DEF Fluid Level 224094



Fill the DEF tank with DEF 223271C

37. Check that the weigh scale monitor is working.
    - Refer to the Weigh Scale Manual for Information.

    - Refer to the Weigh Scale Manual for the load cell calibration procedure.

38. Check the camera display is working.

39. Start the AccuMix engine.

    - The engine will go to 800 rpm.

    Ensure adequate ventilation when operating the machine in enclosed buildings.
    Breathing high levels of engine exhaust fumes could result in death or serious injury.

    Stay clear of hot engine exhaust gas and hot exhaust system.
    Contact with the hot exhaust could result in death or serious injury.

    Refer to Section 5 "Engine Startup" for information.
    - For cold weather starting procedure refer to the "Engine Startup" Section in Section 5.

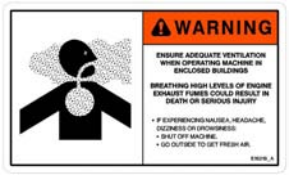
      Note: Also refer to the Cummins Owners Manual for information.

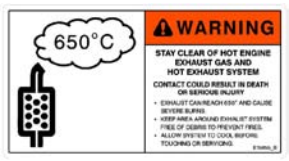
40. Check that the unloading tub doors work.

    Stand clear of the discharge door during operation.
    A lowering discharge door will result in death or serious injury.

Check the Weigh Scale Monitor Is Working 223311

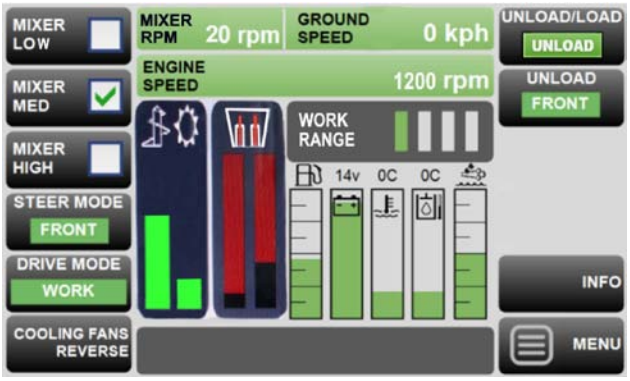
Camera Display 223315





- Press Unload/Load on the Display to select Unload .

- Press Unload on the Display to select Front.



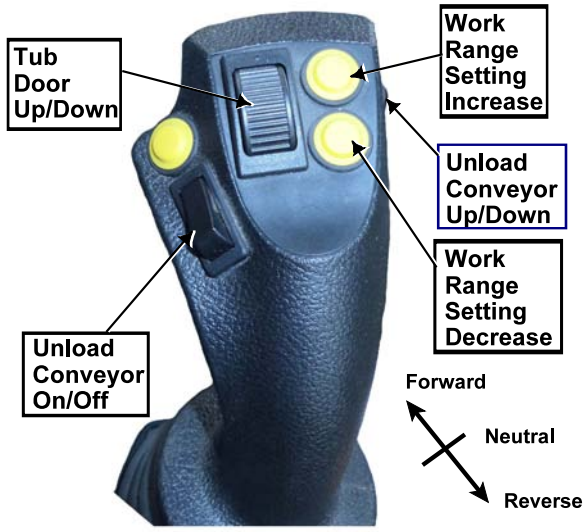
Select Unload Front 224115

- Press the joystick button to open the front tub door.

- Press the joystick button to close the front tub door.

- Press Unload on the Display to select Rear.

- Press the joystick button to open the rear tub door.



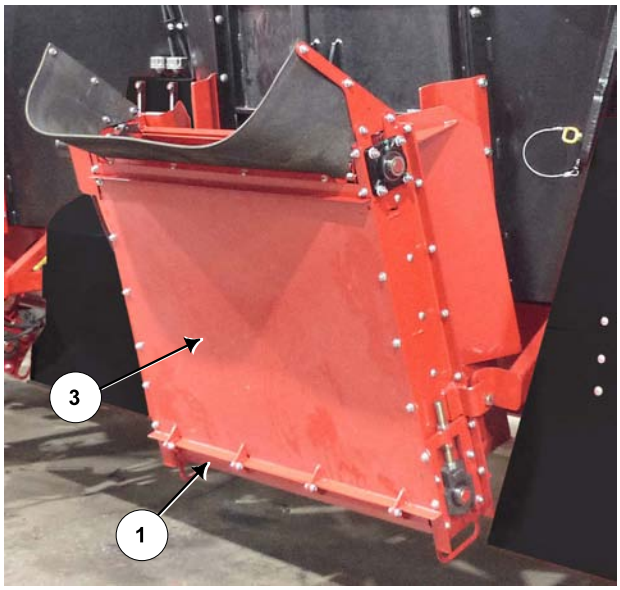
Joystick Unloading Functions 219211

- Press the joystick button to close the rear tub door.

Check that the Tub Doors Work 223198-2

41. With the conveyors raised, clean the spill guard pans (3) located at the back of the conveyors.

    - Raise the conveyor to the upright position.



Raise Conveyor Upright to Clean Spill Guard 223312C

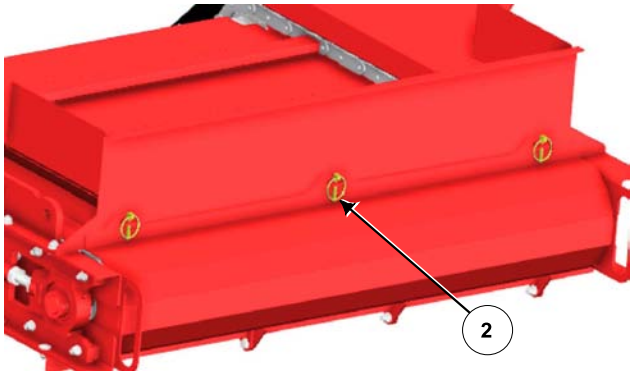
    - On the back of the conveyor remove the 3 linchpins (2) holding the clean out door.

    - Pivot the clean out door (1) on the hinge points.

    - Use compressed air or a broom to remove any material located on the spill guard sheet that is under the conveyor.

    - Clean the conveyor chain sprockets for any material buildup.

    - Fasten clean out door with the lynchpins (2).

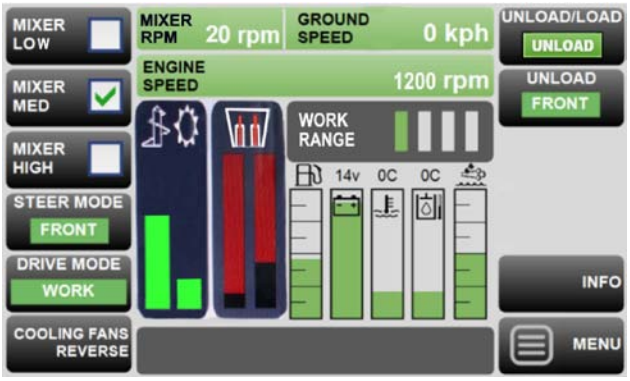


Remove the Clean Out Door Lynchpins
(Conveyor Shown Removed for Clarity Only) 223313C

42. Lower the conveyors and clean the front teeth (4) of the conveyor chains.

Clean the Front Teeth of the Conveyors 223314C

43. On the Display switch to Unload



Select Unload 224115

44. Use the joystick buttons to raise and lower the conveyors to ensure they work.

Stay clear of the unloading conveyor when lowering and raising.
The unloading conveyor could move suddenly and cause serious injury.

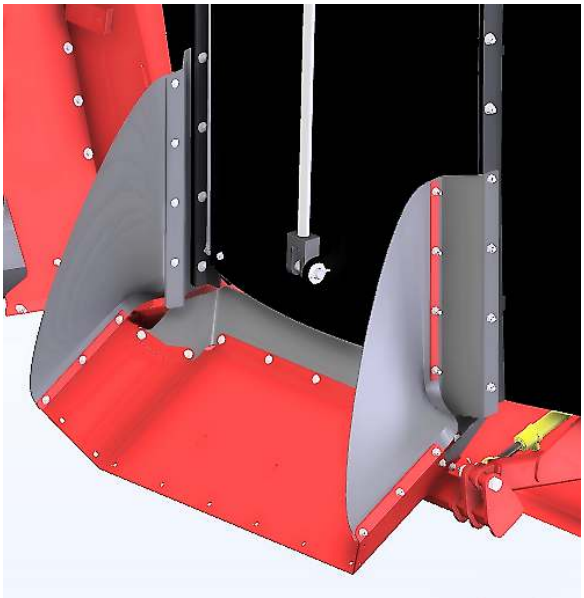
Do not place hands in the area between the conveyor and tub that could cause a clamping hazard.

Raise and Lower the Conveyors
Start the Conveyors to Check they Work 223314

45. If the optional drop chute is installed, use the joystick buttons to raise and lower the drop chute to ensure it works.

Stay clear of the drop chute when lowering and raising.
The drop chute could move suddenly and cause serious injury.

Do not place hands in the area between the drop chute and tub that could cause a clamping hazard.



Raise and Lower the Drop Chute 223314

46. Start the unload conveyors to check that the unload chains move freely.

Stay clear of the unloading conveyor when operating.

Keep body and clothing away from moving parts to prevent serious injury or death.

Raise and Lower the Conveyors
Start the Conveyors to Check they Work 223314

47. Check that the mixing screws in the tub operate normally.

- The mixing screws must be able to turn before loading any material.

Do not enter the tub while the mixers are turning.
Entering the tub when the mixers are turning will result in death or serious injury.

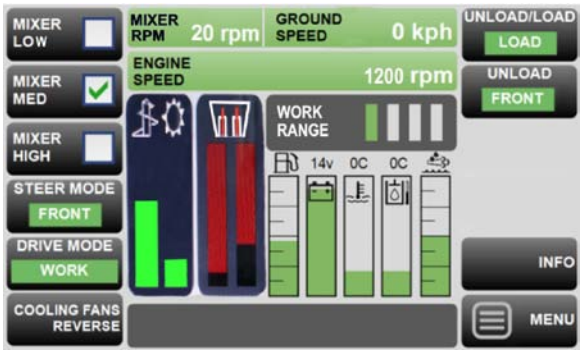
Do not lean over the mixing tub while the screws are turning to avoid the danger of falling into the tub.

Do not contact the rotating screws.

Check that the Mixing Screws Turn 224017

- Press one of the Mixer speed buttons on the display to engage the screws.

- The engine speed will increase to 1200 rpm when the screws are turned on.



Check the Mixers are Working 224121

48. Check the tub camera is working.

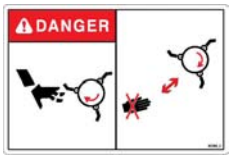
    - Check the camera monitor for a clear image of the tub area.

Tub Camera View (and Rear View Shown) 223315

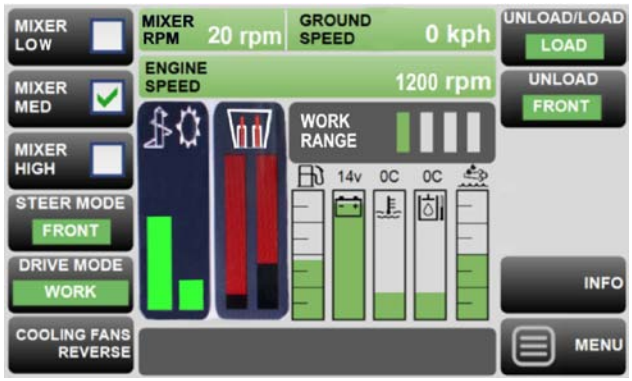
49. Operate the milling head to check that it operates normally.

    Do not operate the milling head within 100 ft (30m) of any person. Contact with moving milling teeth and the auger will cause serious injury or death.

    Keep hands out of the cutting area of the loading arm when the drum is rotating.



    - Press Load on the display to activate the Load functions on the joystick.



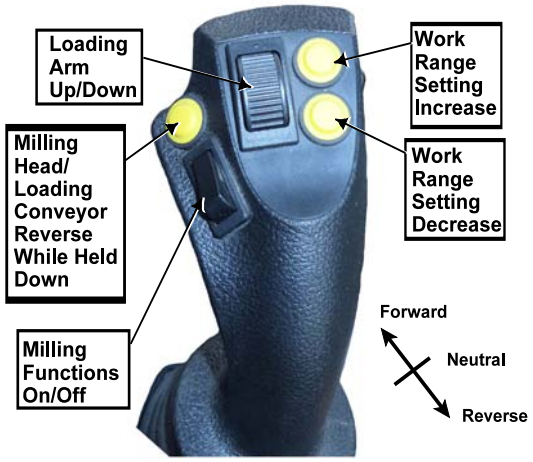
Press Load to Activate Joystick Functions 224121

    - Press the joystick button for Milling Functions On.

    - The engine speed will increase to 2200 rpm when the milling head is turned on.

50. Check that the loading conveyor operates freely while the milling head is operating.

    - Press the button on the side of the joystick and hold it to reverse the milling head and loading conveyor.



Joystick & Button Load Mode Functions 223193C1

51. Check that the rear view/backup camera is working.
    - Press the camera button on the Display to activate the rear view camera
    - The rear view camera will display in the main camera monitor and also in the control display.

Rear View/Backup Camera in Display 224106

52. Press the joystick buttons to raise and lower the milling arm to ensure that it operates freely.


Operate the Milling Head Raise/Lower the Arm 223316-2

Never stand under the loading arm when lowering or raising.
Do not allow people near the loading arm when being moved.
Contact with the moving loading arm will result in death or serious injury.

53. Adjust the heating/cooling settings in the cab.

    - To turn on the diesel heater:
        - Push the On button on the control panel (lower right beside the drivers seat).
        - Other adjustments are available in the control menu.

Diesel Heater Control - Cab Heating 224161

    - To turn on the air conditioning using the Electronic Climate Control panel (upper left corner of cab):
        - Push and hold the dial for about 3 seconds to start/stop the air conditioning compressor.
        - Temperature and fan controls are available on the menu by turning the dial.

Air Conditioning Control - Cab Cooling 224160

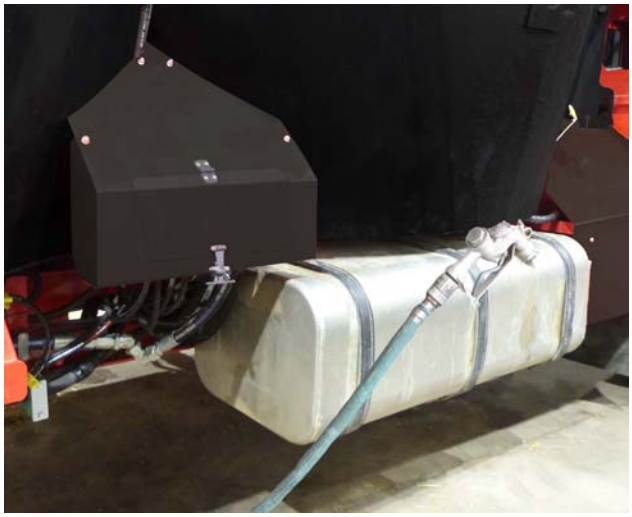
Table of Contents for Section 5 - Accumix AMX1000s Engine Startup

Engine Start Up

Note: Also refer to the "Cummins Owners Manual" for additional information.

Before Starting the Engine

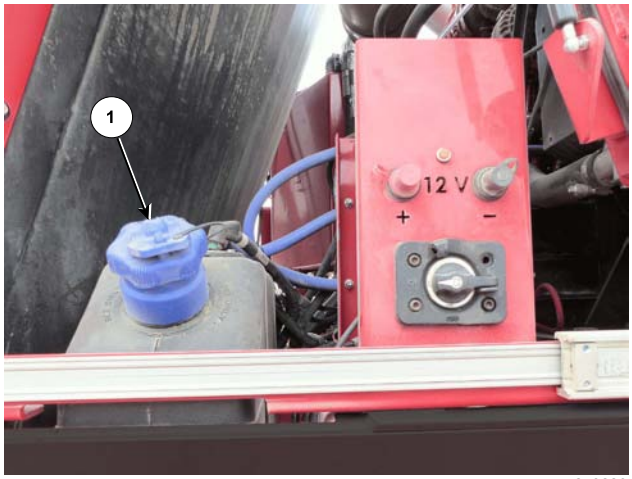
1. Check that the machine has an adequate fuel supply.
   - Fill the tank if needed.
   - Use fuel appropriate to the outside temperature conditions.



Fill Fuel Tank as Needed 223267-2

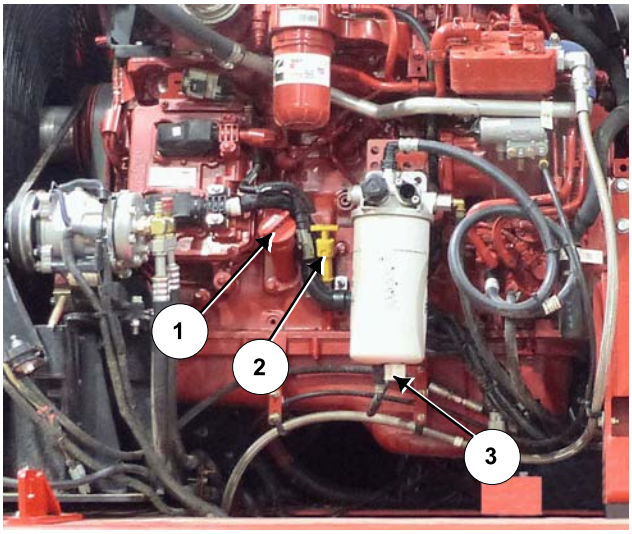
2. Check that the there is an adequate supply of diesel exhaust fluid (DEF) in the tank (1).

   Note: Fill the DEF tank each time the fuel tank is filled.



Ensure Adequate DEF in Tank 219230

3. Check the level of the engine oil.
   - Check the level with the dipstick (2).
   - Fill through the cap (1).
4. Drain the water from the fuel system filter/water separator (3).



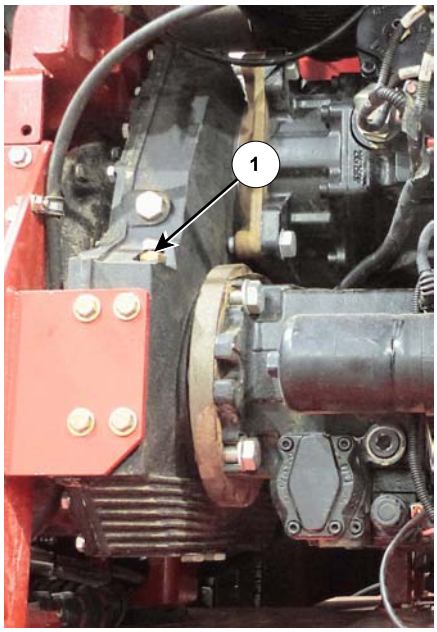
Check/Fill the Engine Oil Level
Drain Water Separator 223252-2

5. Check the oil level in the pump drive gearbox case.

   - Remove the fitting (1) to check the dipstick on the bottom of the fitting for the oil level.

   - Fill with 75W90 synthetic oil with EP additive through the hole (1) if needed.

   - Replace the dipstick fitting (1).



Check Oil Level in Pump Gearbox 219225C

6. Visually check the hydraulic oil level in the oil tank by looking at the oil level sight glass (5).
   - Compare the oil level to the decal.

   - Check the oil level when the oil is cold and the machine is level.

   - Fill with hydraulic oil MV32 if needed.

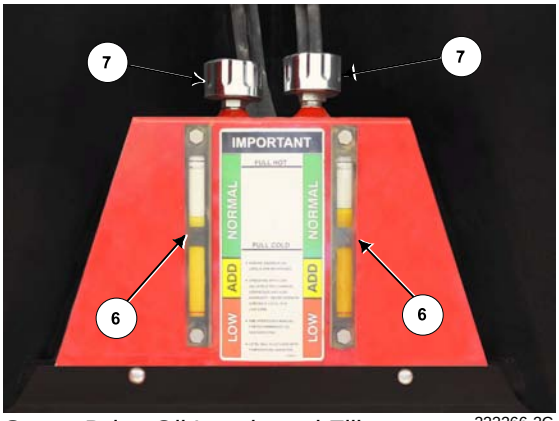
Check the Oil Tank Level 223265-2C

7. Visually check the oil level of the screw drive boxes.
   - Oil level indicators (6) are located on the oil tanks which are located on the left side of the tub.

   - Check the level when the oil is cold.

   - Compare the oil level to the decal.

   - Fill with oil through the removable fill cap (7).



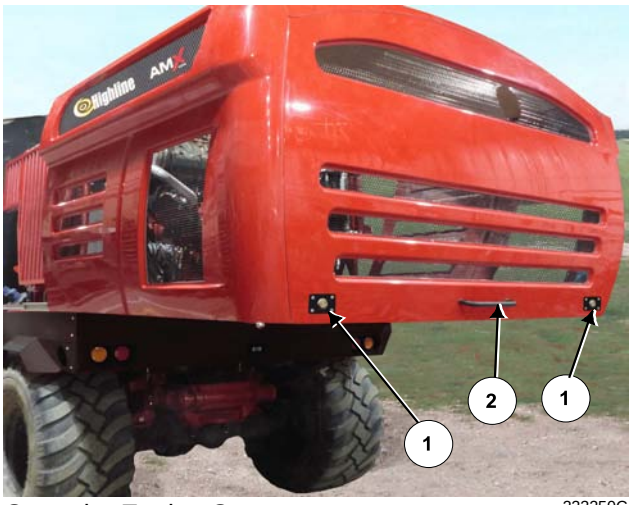
Screw Drive Oil Levels and Fill 223266-2C

Normal Engine Starting

Note: In cold weather (at or below -7C (20F) follow the steps listed in the "Cold Weather Starting and Operation" section below.

Also refer to the Cummins Owners Manual for additional information.

1. Open the engine cover.
   - Remove the 2 engine cover pin retainers (1).
   - Pull the cover backwards with the handle (2) to open the cover on the slides.



Open the Engine Cover 223250C

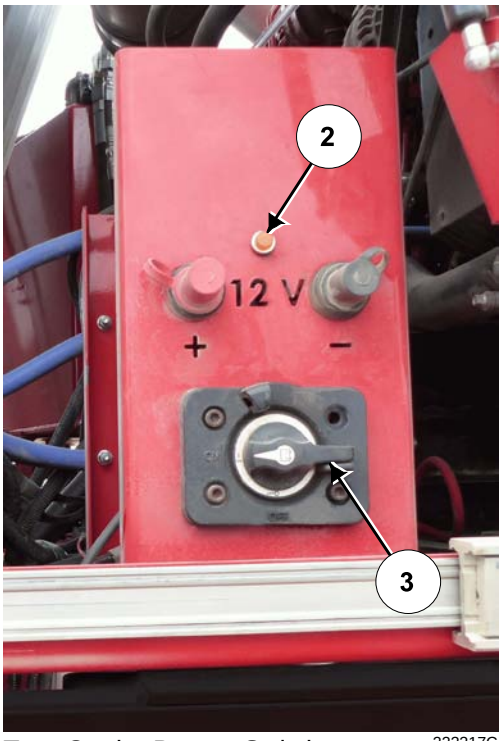
Electrical System Switch

Note: The 12 volt batteries provide power for the engine, the DEF system, and other related systems.

- The voltage at the posts located above the battery switch is 12 volts.

The electrical system can be disconnected by the battery switch when the vehicle is left for extended periods of time or to avoid any drain on the batteries or when doing service work.

- Turn the switch on (horizontal) (3) to allow electrical power to the system and the machine to operate.
- The amber light (2) will be on.



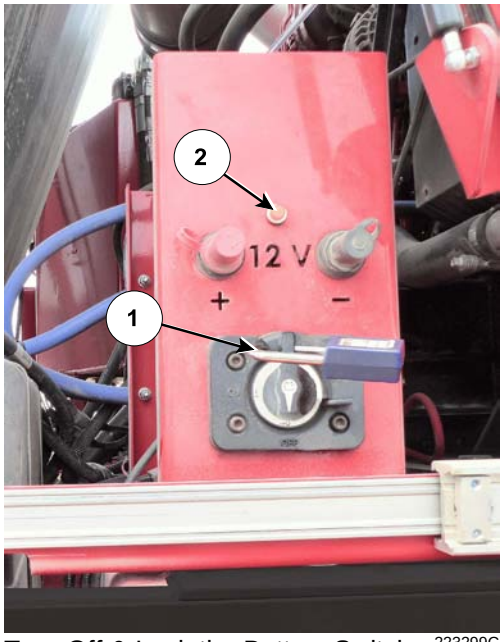
Turn On the Battery Switch 223317C

- The switch can also be turned off (vertical) and locked with a pad lock (1) when the vehicle is left unattended or when service is being performed.

2. Turn the switch off (vertical) (1) to disconnect the batteries from the vehicle electrical system.

    - The amber light (2) will be off.

    Note: If the engine has been running, wait until the amber light (2) has gone out before turning the battery switch to "Off".
    - The engine needs to complete an emissions cycle.
    - The amber light (2) will go out when the cycle is complete.



Turn Off & Lock the Battery Switch 223299C

Machine Settings from Last Use

The machine will remain in the same modes it was in before the key switch was turned off.

- If in Work Mode or Travel Mode the dash throttle will be active.

- The Steering Mode will be in the same mode it was before the key switch was turned off.

Before the engine will start:
- Seat Switch Active - operator sitting in seat.
- Park Brake On.
- Joystick in Neutral.

3. Sit in the drivers seat to be able to start the engine.
   - There is a switch in the seat that senses if the driver is present.

   Note: If the seat switch is deactivated for more than 5 seconds during travel, the machine will come to a stop at the maximum deceleration.

4. Turn on the parking brake switch (2).
   - The foot brake must to be pressed to turn on the Parking brake.
   - The display will indicate that the Parking brake is active in the Ground Speed bar.

     Note: The engine starter will not engage unless the parking brake is turned on.
   - The ladder to the cab will move inward.

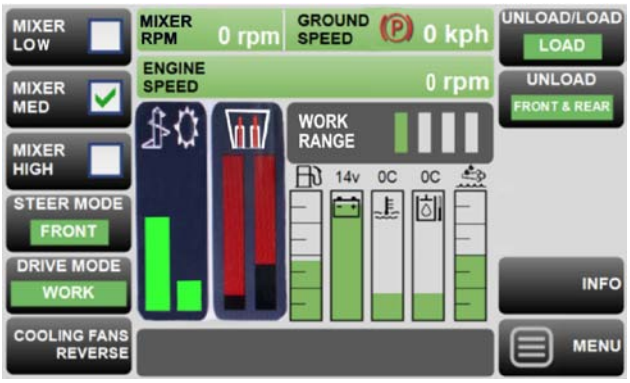
5. Place the joystick control handle (1) into the "Neutral Position".

   Note: The starter will not engage unless the joystick is in Neutral.

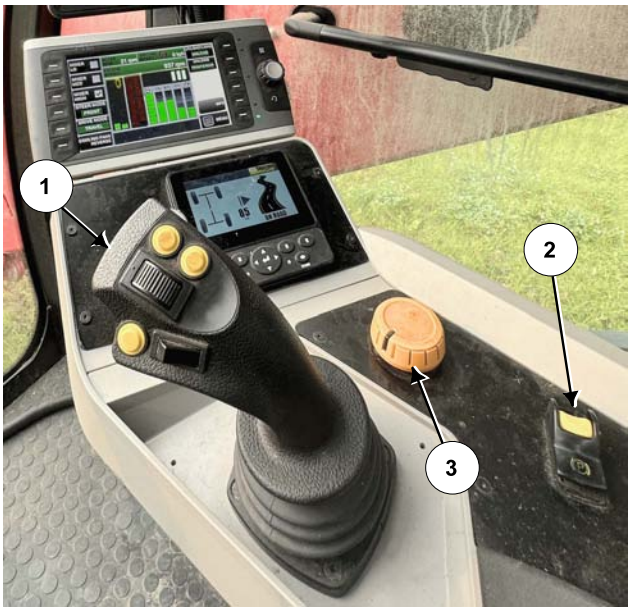
6. Turn the key to the Run position to allow power to the display.

   - Do not crank the engine.
   - A "Wait to Start" message will appear beside the Engine Speed.
     - Heaters are warming the intake air.

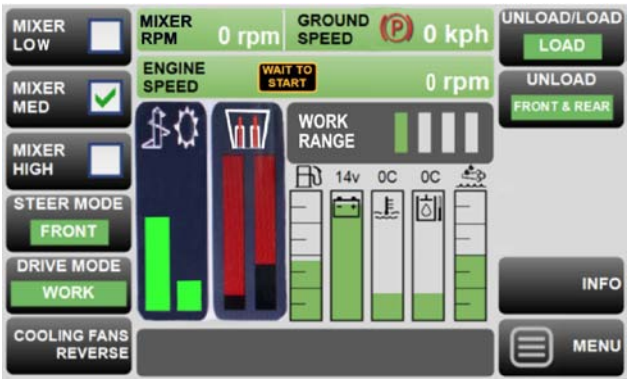
   Note: The length of time the "Wait to Start" is shown depends on the ambient temperature. The "Wait to Start" may not be seen in warmer weather or if the software system takes longer to boot up.



Turn on the Parking Brake Switch 224122



Joystick to Neutral, Park Brake On, Throttle Low Speed 223318C

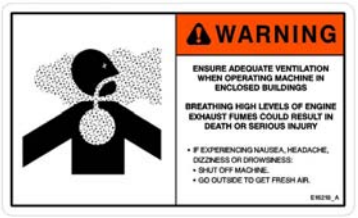


"Wait to Start" Before Cranking Engine 224123

7. Sound the horn to alert others who may be near the machine that the engine is going to be started.
   - Be sure all persons are clear of the machine before starting it.

8. When the "Wait to Start" message goes out on the Display, turn the key to Start and crank the engine.

   - The engine speed will go to 800 rpm while the parking brake is engaged.



Ensure adequate ventilation when operating the machine in enclosed buildings.
Breathing high levels of engine exhaust fumes could result in death or serious injury.

<u>Do not use starting fluids</u> with this engine. The engine is equipped with intake air heaters. If starting fluids are used on this engine it can cause fire, severe engine damage and property damage.
Using starting fluid could result in explosion leading to death or serious injury.

Note: Do not use the starter motor for more than 30 seconds without stopping.
   - Wait 2 minutes between starting attempts to allow the starter motor to cool.

Note: If the engine starts and then stops, wait for the starter motor to stop turning before turning the key to the "Start" position again.

Stay clear of hot engine exhaust gas and hot exhaust system.
Contact with the hot exhaust could result in death or serious injury.

9. If the engine fails to start, check the following:
    - Fuel quality and quantity.
    - Electrical system.
    - Troubleshooting section for additional information.
    - Check the Cummins Owners manual for additional information.

After Starting the Engine

1. Maintain the engine at the low speed of 800 rpm to allow the engine systems to stabilize.
    - The duration of the low speed will depend on the ambient temperature and the time since the engine was last run as well as other factors.

    Note: In ambient temperatures from 0˚C to 60˚C (32˚F to 140˚F) the warm-up time may be up to 3 minutes. In temperatures below 0˚C (32˚F) additional warm-up may be required.

    - The standard engine operating temperature range is 86^0C to 97^0C (186^0F to 207^0F).
    - The maximum allowed operating temperature is 107^0C (225^0F).

Cold Weather Starting of the Engine

Note: Also refer to the “Cummins Owners Manual" for additional information on Cold Weather Starting.

Do not use starting fluids with this engine. The engine is equipped with an intake air heater. If starting fluids are used on this engine it can cause fire, severe engine damage and property damage. Using starting fluid could result in explosion leading to death or serious injury.

1. Pre-warm the engine.
   - The engine is equipped with an electric engine coolant heater.
     - Engine starting will be improved from the use of the engine coolant heater when temperatures are between -5^{0}C and -10^{0}C (23^{0}F - 10^{0}F).

   - Warm the engine for several hours with the electric heater before attempting a cold weather start.

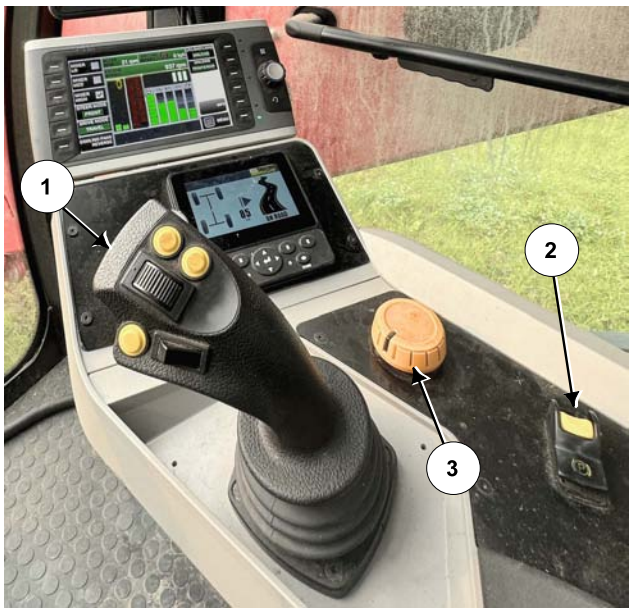
     - Plug the electrical heater into a circuit that is least 15 amps.

     Note: To avoid electrical shock or fire, use a three-wire, 14 AWG (14 gauge), heavy-duty electrical cord with a 15 amp rating suitable for outdoor use.

2. Turn off all electrical accessories to reduce the electrical drain on the battery.

3. Place the joystick control handle (1) into the "Neutral Position".
   Note: The engine starter will not engage unless the joystick is in Neutral.

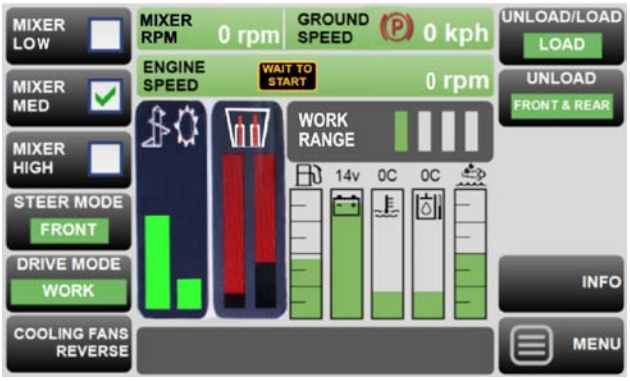
4. Turn the key to the Run position to allow power to the display.



Joystick to Neutral, Park Brake On, Throttle Low Speed
223318C

- Do not crank the engine.

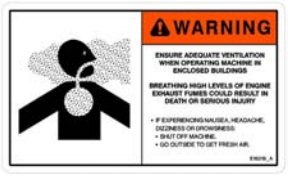
- A "Wait to Start" message will appear beside the Engine Speed.
  - Pre-heaters at each cylinder are warming the intake air.
  - The message will stay on while the intake air heater warms.
  - The length of time the message stays on will be dependant on how cold the cylinder block is.



"Wait to Start" Before Cranking Engine 224123

5. When the “Wait to start” message goes out on the Display, turn the ignition key to the start position and crank the engine until it starts.

   - The engine speed will go to 800 rpm while the parking brake is engaged.



Ensure adequate ventilation when operating the machine in enclosed buildings.
Breathing high levels of engine exhaust fumes could result in death or serious injury.

Stay clear of hot engine exhaust gas and hot exhaust system
Contact with the hot exhaust could result in death or serious injury.

Note: Do not use the starter motor for more than 30 seconds without stopping.
- Wait 2 minutes between starting attempts to allow the starter motor to cool.

Note: If the engine starts and then stops, wait for the starter motor to stop turning before turning the key to the "Start" position again.

6. If the engine does not start, repeat the air heating "Wait to Start" process by turning the key to Off and then to the On position.

   - When the "Wait to start" message goes out on the Display, turn the ignition key to the start position and crank the engine until it starts.

7. After starting the engine speed slowly increase the engine rpm to around 1200 rpm.

   - Allow sufficient warm up time to allow lubricant to reach the turbo charger bearings and engine parts.

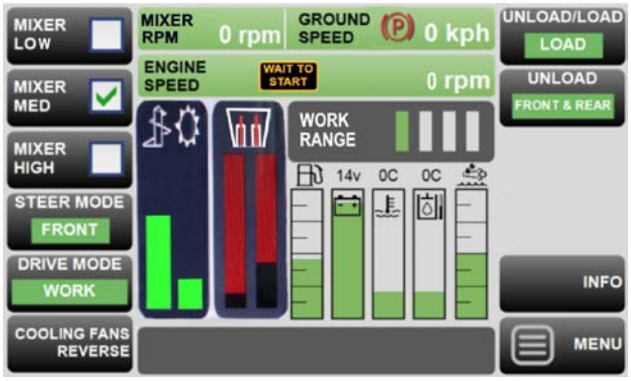
   - In severe cold temperatures it may be necessary to warm up for additional time.

   - If the engine is operated at high throttle while it is cold it will run rough.
     - Allow more time for the engine to warm up.

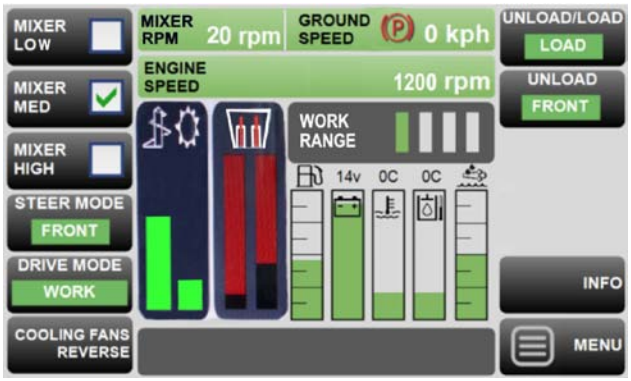
8. Continue to run the engine until the coolant temperature is around 80˚C (176˚F) to keep the engine parts in good condition.
   - The standard engine operating temperature range is 86^0C to 97^0C (186^0F to 207^0F).
   - The maximum allowed engine operating temperature is 107^0C (225^0F).

   - Check the engine coolant temperature on the display  .

   - Damage to engine valve control components can result from engine operation for short intervals if the engine is not allowed to warm completely.



"Wait to Start" Before Cranking Engine 224123



Allow Time for Engine Warmup 224097

Machine Operation In Cold Weather

- When the machine is started in cold weather, the hydraulic system may create a whining noise.

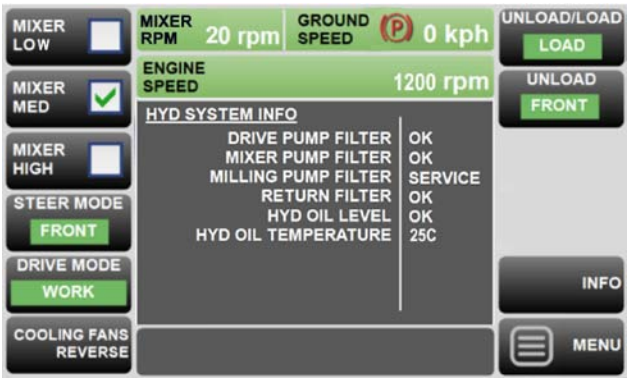
- The noise should stop after a few minutes.
  - If the noise continues, the viscosity of the oil may be too high for operation at cold temperatures and a different oil viscosity required.

  - Idle the engine to warm up the hydraulic oil.

  - Check the condition of the oil filters on the display.
    - Press Info and rotate the display knob until "Hyd System Info" section is shown.

Note: The hydraulic oil temperature should be above 40^0C for a valid indication of the filter condition.

- Drive at a low speed to allow time for the oil in the axles to warm up.



Hydraulic System Information 224099

Considerations for Cold Weather Starting and Operation

Note: Also refer to the “Cummins Owners Manual" for additional information on Cold Weather Starting.

- Use Winter Grade Fuel.
  - When temperatures fall below 0°C (32°F), winter grade fuel is best suited for cold weather operation.
  - See your fuel dealer for cold weather fuel requirements in your area.

- Remove condensation in the fuel tank.
  - Fill the fuel tank after each operating day to prevent condensation in the fuel tank and water entering the fuel system.
  - Open the fuel tank drain valve at the bottom of the tank to remove water.
    - See Section 7 for procedures to drain water from the fuel tank.

- Use engine oil with a viscosity suitable for the temperature range.
  - See Section 7 and Section 9 for suggested Oil Viscosity.
  - Also refer to the Cummins Owners Manual for more information.

- Keep batteries at full charge and keep them warm.
  - Battery posts should be clean and able to make a good electrical connection to cables.
  - A battery heater pad is recommended if the machine will be stored outside during the winter.

- The cooling system has a minimum of 50/50 of good quality water and fully formulated antifreeze for protection to -36°C (-33°F).
  - See Section 7 for more coolant information.
  - Also check the Cummins Owners manual for more information.

- Check the crankcase breather.
  - Crankcase ventilation gases contain water vapor that can freeze in cold temperatures.
    - A plugged ventilation hose can damage the system.
  - See Section 7 for more information.

- Remove snow buildup that may have accumulated on the engine cover screens and radiator screens. The snow will restrict the air flow through the radiators.

Engine Starting with Jump Start Cables

Note: The engine uses a 12 volt electrical system. Jump start only with an electrical system of 12 volts.

- Do not use a power source with a voltage other than 12 volts. Using a higher voltage power source will damage the machine electrical system.

- Using a lower voltage source could damage the electrical system of the power source.

- Batteries can give off flammable fumes that can explode resulting in personal injury.
- Prevent sparks near the batteries. Sparks could cause vapors to explode. Do not smoke when checking battery electrolyte levels.
- Battery electrolyte is an acid and can cause personal injury if it contacts skin or eyes. Always wear eye protection when starting a machine with jump start cables. Use of gloves is recommended.
- Improper jump start procedures can cause an explosion resulting in personal injury.
  Do not allow the jump start cable ends to contact each other or the machine.

1. Engage the parking brake (2) on the machine needing the jump start.
   - Place foot on the brake pedal.

2. Place the joystick (1) into neutral position.

3. Turn the machine start switch in the cab to the OFF position.

4. Turn off all lights and accessories on the machine.

Park Brake On, Joystick to Neutral, Throttle Low Speed
223318C

5. Turn the battery disconnect switch (1) to the OFF position to prevent damage to electrical components while connecting the battery cables.
   - The amber light (2) should be off.

6. When starting from another machine, make sure that the machines do not touch.

7. Stop the engine of the machine that is being used as an electrical source.
   - If using an auxiliary power source, turn off the charging system.

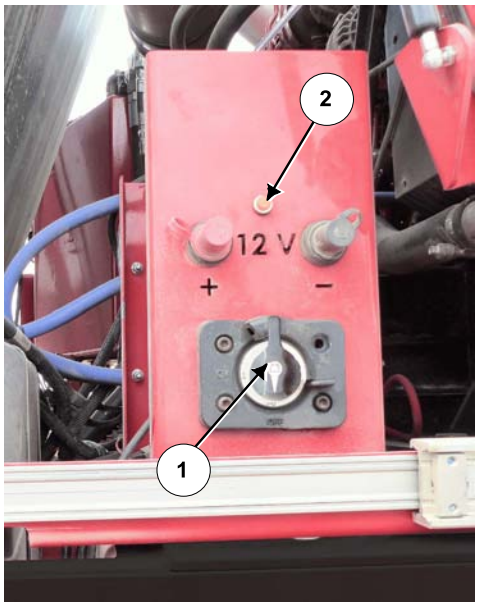
8. Remove the plastic covers on both jump starting posts of the mixer.

9. Connect the 12 volt battery positive (+) to the positive (+) jump post located on the machine.

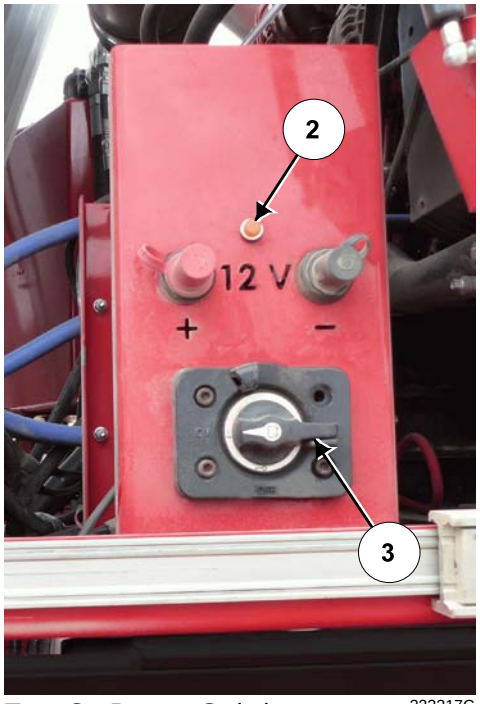
10. Connect the 12 volt battery negative (-) to the negative (-) jump post. Connect the negative cable last.

Improper jump start cable connections can cause explosion of the batteries resulting in personal injury.

11. Turn the battery disconnect switch (3) on the stalled machine to the ON position.



Turn Off Battery Switch 223299-2C



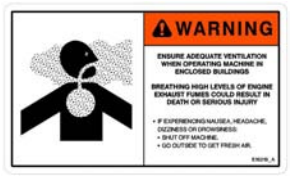
Turn On Battery Switch 223317C

12. Start the engine of the machine that is being used as an electrical source or energize the charging system on the auxiliary power source.

13. Wait at least two minutes before attempting to start the stalled machine.
    - This time will allow the batteries in the stalled machine to partially charge.

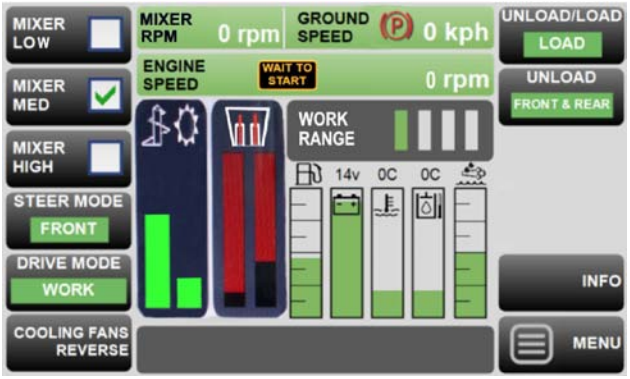
14. Start the stalled engine.

Ensure adequate ventilation when operating the machine in enclosed buildings
Breathing high levels of engine exhaust fumes could result in death or serious injury.



Stay clear of hot engine exhaust gas and hot exhaust system
Contact with the hot exhaust could result in death or serious injury.

- Turn the key switch to the "On" position.
- A "Wait to Start" message will appear on the Engine Speed bar on the Display.
  - Pre-heaters are warming the intake air.
- The message will remain on the Display until the preheat temperature has been satisfied.



Wait To Start 224123

15. When the "Wait to Start" message goes out, turn the key to Start and crank the engine.

16. Immediately after starting the stalled engine, disconnect the jump start cables.

17. Install the plastic covers on both jump starting posts.

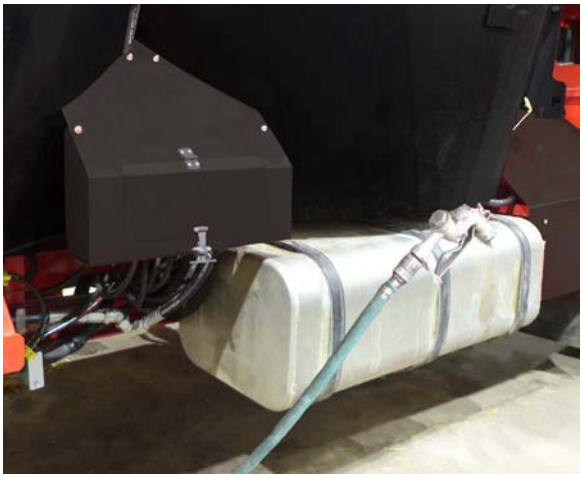
Install Post Covers 223317

Starting After Running Out of Fuel

1. Fill the fuel tank.

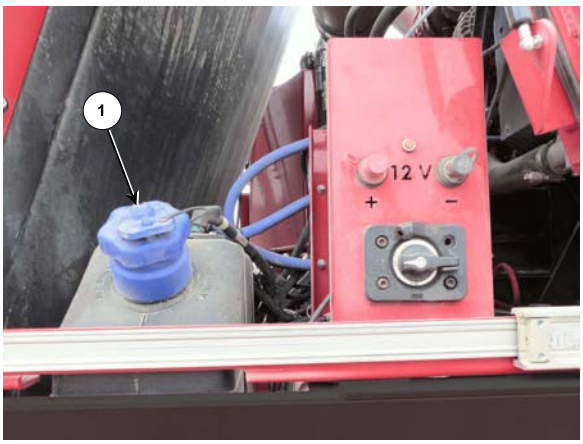
2. Drain the fuel tank from any water that may have accumulated in the tank.

   - See Section 7 for information on draining water from the fuel tank.



Fill the Fuel Tank 223267-2

3. Check the level of the DEF in the DEF tank (1).
   - Fill if necessary.



Check DEF Tank Level
Add If Needed 223271C

4. Unscrew the hand pump (2) that is located on the fuel/water separator.

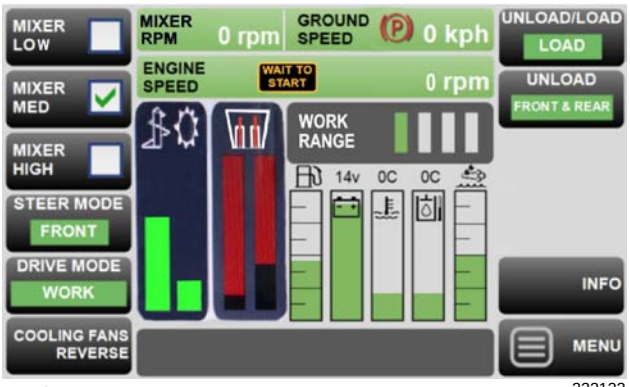
5. Prime the fuel system by pushing the hand pump (2) in and out until it is really hard to pump anymore.

6. Return the hand pump (2) to the storage position on the separator and tighten in place.

Prime the Fuel System with Hand Pump 224125C

7. Turn the key to the Run position.
   - The "Wait to Start" message will be on the display.

8. Crank the engine when the "Wait to Start" message (in the Engine Speed bar) goes out.



Wait To Start

222123

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Table of Contents for Section 6 - Operating the AccuMix AMX1000s

Operating the AccuMix

Cutting and Mixing - General Considerations

Note: It is highly recommended to consult with a feed nutritionist when planning the rations, the mixing time and cut length. A feed nutritionist is able to provide the information needed to optimize the ration mix that is best suited for the herd. Follow the nutritionist's recommendations to ensure the best results with the AccuMix AMX1000s.

Note: It is the operator's responsibility to ensure that the materials in the feed mix are suitable for livestock feeding.

The cutting and mixing of materials with the AccuMix AMX1000s will differ with the various feeds and the weather conditions. Mixing times will vary depending on the mix of materials.

Using the milling head will partially cut material before it enters the mixing tub. The milling head reduces the overall cutting time required in the tub. Additional cutting does occur during the mixing cycle so caution should be used to not over cut the materials. Follow the nutritionist's recommendations for mixing times to ensure the best results with the AccuMix AMX1000s.

When mixing beyond a certain amount of time the mix quality may deteriorate. An extended mixing time or a high speed of rotation causes heating of the product because of the contact with the surface of the screws and tub walls.

The ideal mix will be light, fluffy and uniform. Hays/straws will be cut cleanly at short lengths and no clumping of feed will be visible.

The regular use of a particle separator helps to ensure accuracy of the mix.

Auto Throttle Control and Operating Conditions

The machine has automatic throttle control so that the engine speed will be adjusted according to the operating conditions chosen.

- See Section 3 for more details on the Auto Throttle Control.
- The engine speed changes are also noted in this section based on the operating conditions.

Hydraulic Oil Temperatures

Based on the use of 32 weight hydraulic oil:

- 80^0C (176^0F) is the maximum temperature for continuous operation.
- 85^0C (185^0F) indicates a warning of increasing oil temperature. Check the oil cooling system.
- 90^0C (194^0F) is the maximum temperature for short term operation. Continued 90^0C (194^0F) is a danger to the hydraulic system.

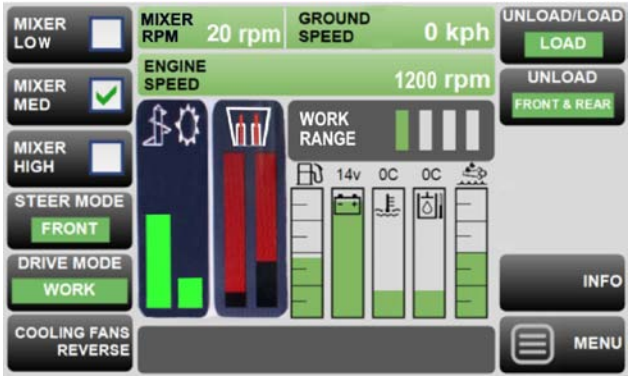
Transporting the AccuMix

Transporting On Public Roads

1. On the Display choose:

    - Press Drive Mode and toggle to Travel.

        - Front Steer Mode is automatically enabled.
        - Milling functions are disabled in Travel mode.
        - Unload functions are disabled in Travel mode.



Driving on Public Roads 224094

2. Raise the loading arm enough to travel without hindrance.

Raise the Arm to Travel Position 223326

3. The machine speed is controlled through the joystick.

    - The joystick is also used to choose the direction of travel.

    - Engine speed goes to 1200 rpm and scales proportionally with joystick position up to 1800RPM.

Move Joystick for Direction and Speed of Travel 223318

4. Drive according to the road conditions.

Do not allow riders to ride on the outside of the machine.
Falling from the moving machine can cause serious injury or death.

Note: If the seat switch is deactivated (driver not in the seat) for more than 5 seconds during travel the machine will come to a stop at the maximum deceleration.

- Reduce speed when driving on icy, wet or graveled surfaces.
- Avoid holes, ditches, sharp turns, hill sides and obstructions.
- Always operate the flashing lights when traveling on a highway or public roads, except where prohibited by law.
- Follow local regulations for equipment lighting and marking.

Drive According to Conditions 223328-2

5. Maximum travel speed:
   - The maximum speed is 25 mph (40 kph).

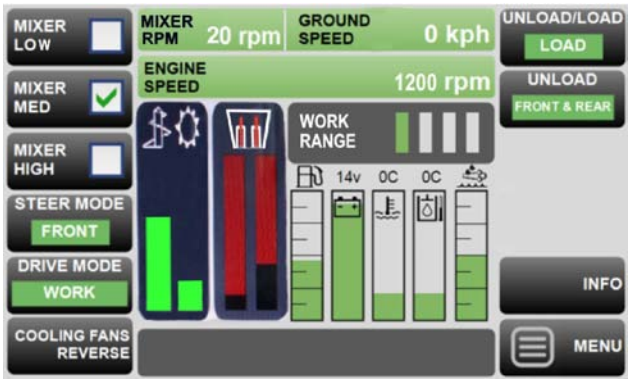
Transporting To the Loading or Unloading Site (not on Public roads)

1. On the Display:

Drive Mode: Toggle the display to select:

Travel mode allows speeds up to 25 mph (40 kph).

- Travel mode uses only Front Steer mode.
- Selecting Travel automatically chooses Front Wheel Steer.
- Machine must be stopped to switch into Travel mode from Work Mode.



Travel to Loading/Unloading Site 224094

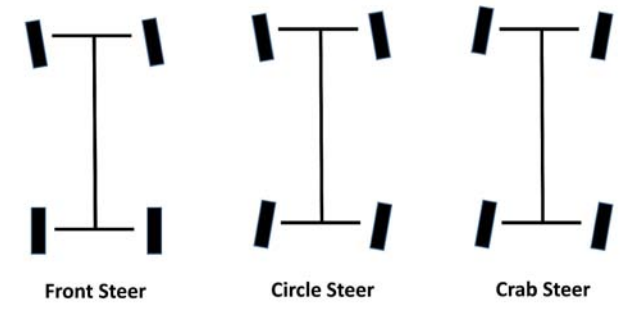
Work mode allows 4 different speed work ranges that are preset by the user.

- Work mode allows Front steer, Circle steer or Crab steer.

Steer Mode: Toggle the display to select:

Front Steer is steering using only the front wheels.

- When in the Travel Drive Mode front steer is chosen.
- Front Steer can be used in the Work Mode also.
- The machine must be at a full stop to select Front Steer.
- The wheels can be at any angle and they will activate to Front Steer.



Steer Modes 224116

Circle Steer or Crab Steer is available in the Work Drive Mode.

- The machine can be moving to toggle between Circle and Crab steering provided the wheels are close to being centered.
  - Refer to the Steering display for the wheel angle.

2. Move the joystick to choose the direction of travel and control the speed of travel.

   - When pushing the joystick forward, the engine speed goes to 1200 rpm and increases proportionally with joystick position up to 1800 RPM.

Move Joystick for Direction and Speed of Travel 223318

3. Raise the loading arm to give a clear view for driving and to avoid hitting objects.

Raise the Loading Arm 223326

If traveling with the arm raised, be aware of overhead surroundings.

A raised arm can contact overhead objects which will result in death or serious injury.
Arm contact with objects will result in machine damage.

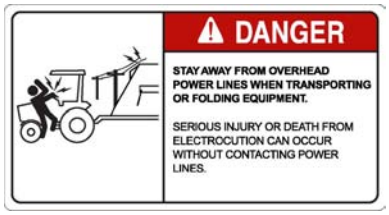
4. Do not allow riders on the outside of the machine.

Do not allow riders to ride on the outside of the machine.
Falling from the moving machine can cause serious injury or death.

5. Remain seated to drive the machine.

    - If the seat switch is deactivated (driver not in the seat) for more than 5 seconds during travel the machine will come to a stop at the maximum deceleration.

6. Drive according to the conditions.



Stay away from overhead power lines.
Serious injury or death from electrocution can occur without contacting power lines.

- Reduce speed when driving on icy, wet or graveled surfaces.
- Avoid holes, ditches, sharp turns, hill sides and obstructions.

Drive According to Conditions 223336

7. Maximum travel speed:

    - The maximum speed in Travel Mode is 25 mph (40 kph).

    - Speed in the four Work Range modes is dependent on presets set by the user.
        - See Section 3 for information on setting the Work Ranges.

Loading Materials With the Milling Arm

Loading from a Silage Pile

1. Ensure the unloading doors on the tub are closed.

    - On the Display select Unload.

    - Use the joystick buttons to lower the doors.

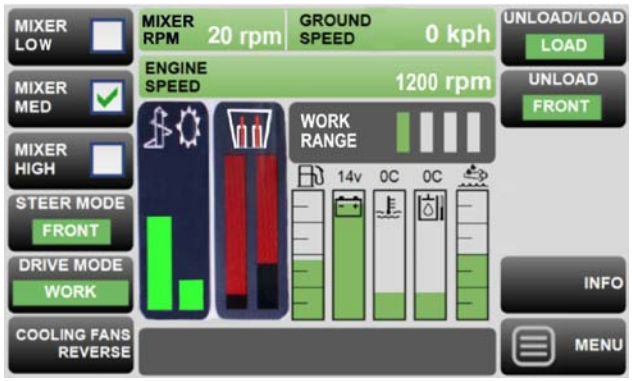
Ensure Unload Doors are Closed 223329

2. Toggle Drive Mode to select Work as the drive mode.

3. Use the joystick buttons to increase or decrease the Work Range.
    - The bars on the Display indicates which Work Range the machine is in.

    - The Work Range preset speeds can be adjusted.
        - See Section 3 for information on how to adjust the Work Range preset speeds.

        - The speed control within the preset range is through the joystick.
            - The joystick is also used to choose the direction of travel.



Select Drive Mode 224121

Joystick & Buttons Load Mode Functions 223193C2

4. On the Display select Load to activate the joystick Load functions.

5. Release the Parking Brake switch.

   - Place a foot on the manual brake to allow the Park Brake switch to disengage.

   - The ladder to the cab will move in toward the machine.

   - Engine speed will increase to 1000 rpm.

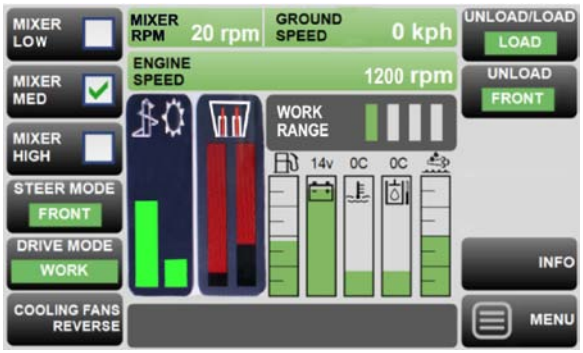
   Keep Persons Back When the Ladder Is Moving
   The ladder can move quickly when the machine parking brake is disengaged.
   Contact with a moving ladder may result in minor injury.

6. Raise the milling arm to about 3 feet from the ground.

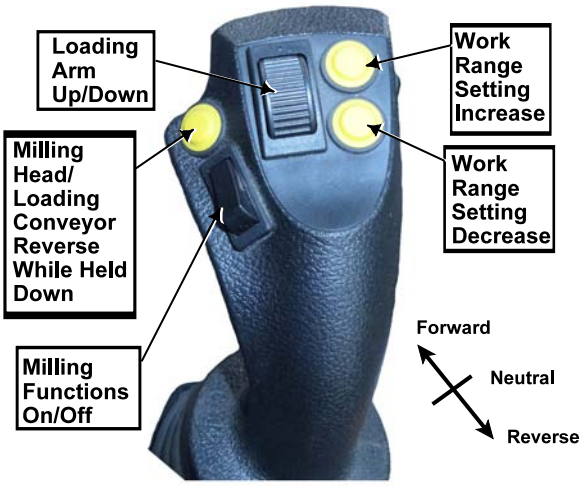
7. Drive up to the silage pile.
   - Stay back about 3 feet.

8. Position the machine so the milling head is parallel to the face of the pile.
   - This will reduce the damage to the surface of the product and leave a uniform and compact wall.

   Note: It is the operator's responsibility to ensure that the materials in the feed mix are suitable for livestock feeding. Some of the silage cover material will be discharged with the feed if the cover material is contacted by the rotating milling head.



Select Load 224121



Joystick Button Load Mode Functions 223193C1

Position Milling Head 223330

9. Select one of the mixing screw speeds on the display to turn on the screws.

   - The engine speed will increase to 1200 rpm.

   Do not enter the tub while the mixers are turning. Entering the tub when the mixers are turning will result in serious injury or death.

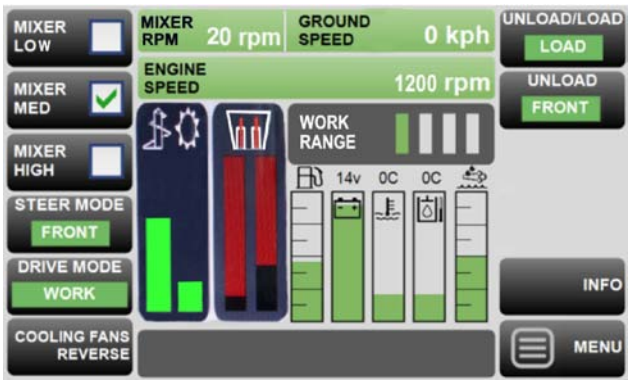
   - The mixer speed rpm presets can be adjusted.
     - See the Display Control Section 3, Menu, Operating Settings.
   - The Mixer RPM will be shown on the display.

10. Start the milling head and loading conveyor.

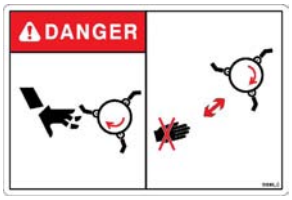
    Keep people back when loading with the milling arm.
    Do not operate within 100 ft (30m) of any person.
    Contact with the moving milling teeth and auger will cause serious injury or death.
    Keep hands out of the milling area when the drum is rotating.

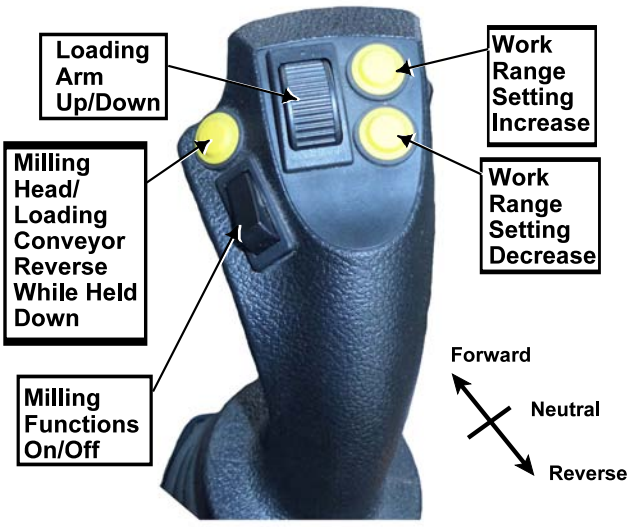
    - Push the joystick button to turn on the milling head and loading conveyor functions.
      - The engine speed will increase to 2200 rpm.

    - The milling head speed can be adjusted.
      - See the Display Control Section 3, Menu, Operation Settings.
      - The loading conveyor speed can be adjusted.
        - See the Display Control Section 3, Menu, Operation Settings.



Start the Mixing Screws 224121





Joystick Load Functions 223193C1

11. Raise the milling arm to the top of the silage feed pile.

12. Drive up to the silage pile until the material starts to move onto the loading conveyor and into the tub.

13. Stop driving forward and apply brakes to keep the machine stationary.

14. Lower the arm at a rate that maintains a consistent flow of material into the mixing tub.

Raise Milling Arm to Top of the Pile 223355

Stand clear of the milling arm when it is lowering.
Contact with the milling arm while lowering will result in death or serious injury.
Do not allow people near the milling arm when being moved.

- Take about 3 or 4 inches from the face of the pile with each pass.
  - If the loading is too aggressive the milling head may stall.
    - If the milling head stalls, back away from the pile to allow the milling head to start again.

- If a large amount of wet material is loaded onto the conveyor it may stall.
  - If the conveyor stalls, reverse the conveyor to clear it and to get the conveyor moving again.
    - Press and hold the milling head reverse button on the side of the joystick.

  - The loading conveyor speed may need to be increased to clear material faster during loading.
    - The loading conveyor speed can be adjusted in Menu, Operating Settings.

Lower Arm While Loading 223332

15. After each pass clean up the material that falls down.
    Note: If on a non-paved surface avoid picking up dirt or debris.

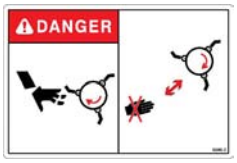
16. Check the tub camera display to ensure material is going into the tub and landing near the center of the tub.
    - Adjust the loading conveyor speed (if needed) to have material land near the center of the tub.
      - The loading conveyor speed can be adjusted in Menu, Operating Settings.

Clean Up Fallen Material 223333

Check Tub Camera for Material Landing Near the Center of Tub 223334

If the milling head plugs:
- Use the momentary switch on the joystick to reverse and then forward the milling head/conveyor a number of times until the milling head/conveyor moves and the plug is removed.
- If reversing the milling functions does not clear the plug it will need to be removed manually.

Contact with moving milling teeth and auger will cause serious injury or death.
Stand clear of the moving ladder.
Stay clear of the moving loading arm.

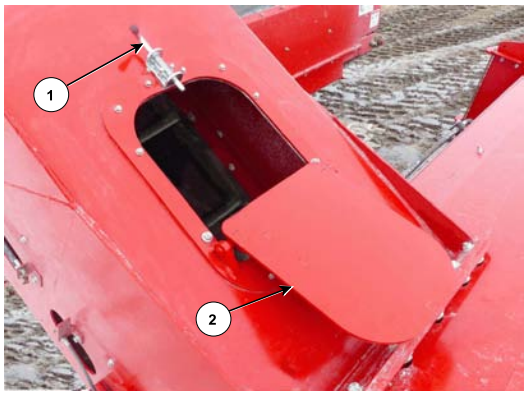


To Manually Remove Plugging of the Milling Head:
- Lower the loading arm to the ground.

- Turn on the parking brake.
  - The cab ladder will move outward.

- Shut the machine off and remove key.
- Turn off and lock the battery switch.

- Open the loading arm access panel (2) upwards.
  - Pull the spring loaded lever (1) and move the panel upwards.



Open the Loading Access Panel 220071C

- Remove the packed material from around the auger area, paddles and loading conveyor.

- If frequent plugging is occurring, adjust the milling head and loading conveyor speed.
  - See Section 3 "AccuMix Display/ Control" on adjusting speeds.

Clear Plugging from Auger Area 223335

17. Monitor the weight of material loading by watching the weigh scale display.
    Note: Refer to the weigh scale manual for information on using the weigh scale monitor.

    - Add materials according to the ration recommended by the animal nutrionist.

18. When at the bottom of the pile, raise the milling arm to the top of the pile and drive forward.
    - Lower the arm to load more material.

19. Before the total weight of the ration has been loaded, lower the arm and drive forward to collect material that has fallen to the ground.

    Note: If on a non-paved surface avoid picking up dirt or other debris.

Monitor Weight Being Loaded 223311

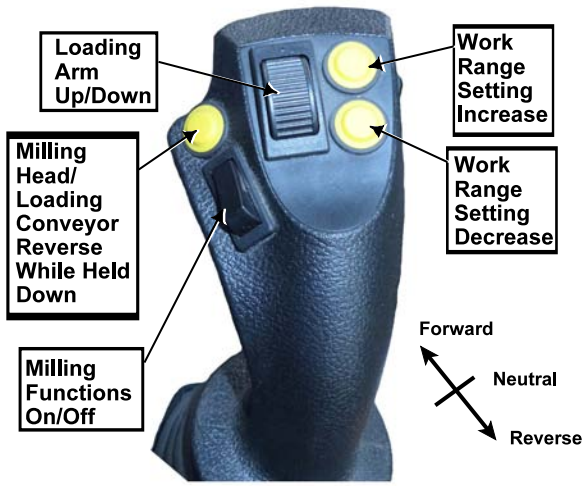
Clean Up Any Fallen Material 223333

20. When the weight of material has been achieved as shown on the weigh scale display, reverse the milling head and loading conveyor to move material off the loading conveyor and back into the pile.

    - Press the momentary switch on the joystick to reverse the milling head and loading conveyor.
      - Release the button to resume the milling head and conveyor movement.

21. To stop the milling functions push the joystick button for milling functions off.

    - The engine speed will decrease to 1200 rpm.



Joystick Load Functions 223193C1

Loading Bales with the Milling Head

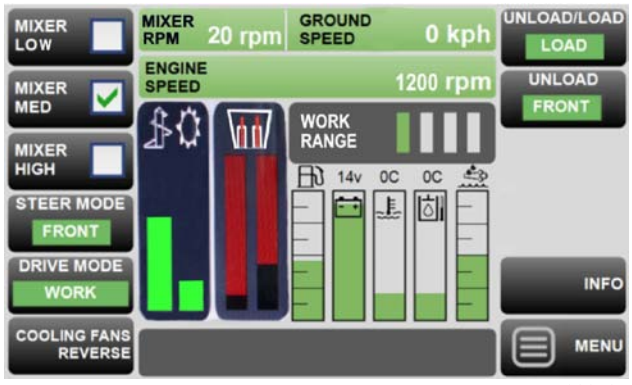
1. Have the bales positioned on the ground in a stable manner.

2. Before loading bales remove the twine/wrap or other materials from the bales to prevent the twine/wrap or other material from being in the ration mix or becoming entangled in the machine.

   Note: It is the operator's responsibility to ensure that the materials in the feed mix are suitable for livestock feeding. Some of the wrapping material (twine, net wrap, silage plastic wrap or other materials) will be discharged with the feed if the wrapping materials are not removed prior to loading.

3. On the Display select Load to enable the joystick for milling functions.

Loading Bales from the Ground 223337

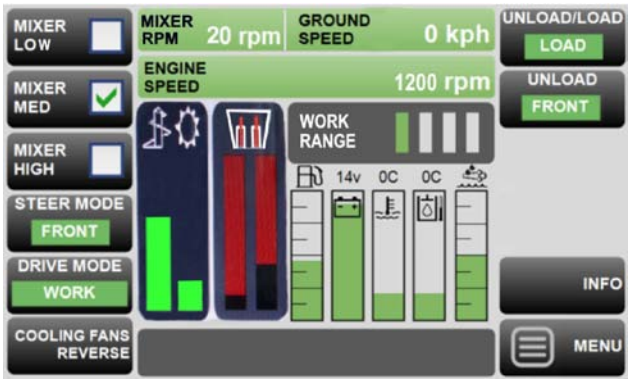


Select Load 223121

4. Start the mixing screws by selecting a mixing screw speed on the Display.
   - The engine speed will increase to 1200 rpm.

Do not enter the tub while the mixers are turning. Entering the tub when the mixers are turning will result in death or serious injury.

   - The mixer speed rpm presets can be adjusted.
     - See the Display Control Section 3, Menu, Operation Settings.
   - The Mixer RPM will be shown on the display beside the Ground Speed.

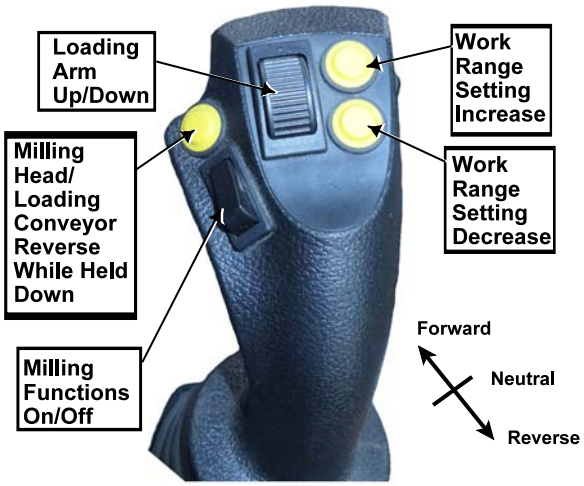


Select A Mixer Speed 224121

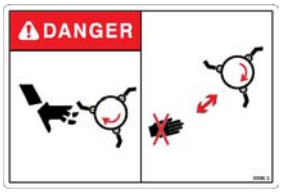
5. Start the milling functions.
   - Push the joystick button to turn the milling functions on.
     - The engine speed will increase to 2200 rpm.

Keep people back when loading with the milling arm. Do not operate within 100 ft (30m) of any person. Contact with the moving milling teeth and auger will cause serious injury or death.
Keep hands out of the milling area when the drum is rotating.

   - The milling head speed can be adjusted.
     - See the Display Control Section, Menu, Operation Settings.
   - The loading conveyor speed can be adjusted.
     - See the Display Control Section, Menu, Operation Settings



Joystick Load Functions 223193C1



6. Drive up to the bales.

   - The bale can be loaded by lowering the arm after 3 to 4 inches of engagement.

   - The bale can also be loaded by taking layers off the bale by driving forward along the bale then backing up and moving the arm down to take off another layer.

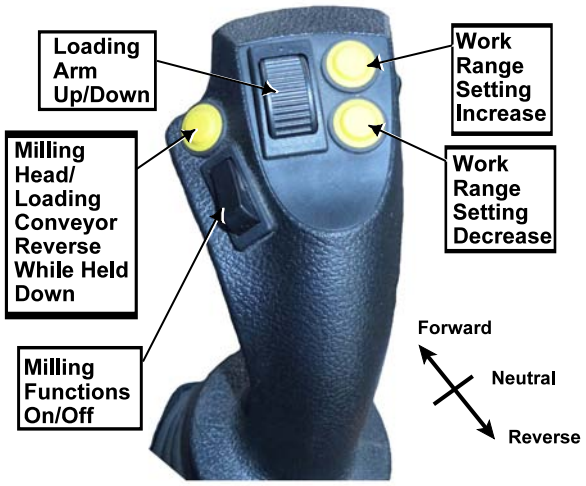
Milling Bales 223337

<u>If the milling head plugs</u>:

- Back the machine away from the material.

- If the head fails to restart, use the momentary switch on the joystick to reverse and forward the milling head/conveyor a number of times until the plug is removed.

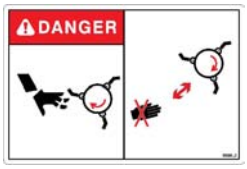
  - If the loading conveyor stalls, stop loading and either back away or lift the milling head.
    - Use the momentary button on the joystick to reverse and forward the milling head/conveyor a number of times until the plug is removed and the conveyor starts moving freely.



Joystick Load Functions 223193C1

- If reversing the milling functions does not clear the plug it will need to be removed manually.

Contact with the moving milling teeth and auger will cause serious injury or death.



To Manually Remove Plugging of the Milling Head:

- Lower the loading arm to the ground.

- Shut down the machine.
  - Remove the key.
- Shut off and lock the battery switch.

Contact with moving milling teeth and auger will cause serious injury or death.
Stand clear of the moving ladder.
Stay clear of the moving loading arm.

- Open the access panel (2) on the top of the arm.
  - Pull the spring loaded lever (1) and move the panel upwards to open it.

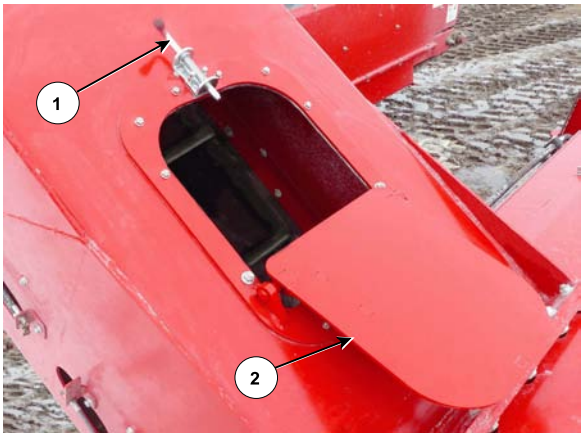
- Remove the packed material from around the auger area, paddles and loading conveyor.

- If frequent plugging is occurring try increasing the loading conveyor speed.
  - See Section 3, Display Control for information on adjusting speeds.

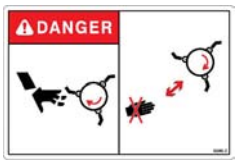
7. Monitor the weight of material loading by watching the weigh scale display.

   Note: Refer to the weigh scale manual for information on using the weigh scale monitor.

   - Add materials according to the ration mix recommended by the animal nutrionist.



Open the Loading Access Panel 220071C

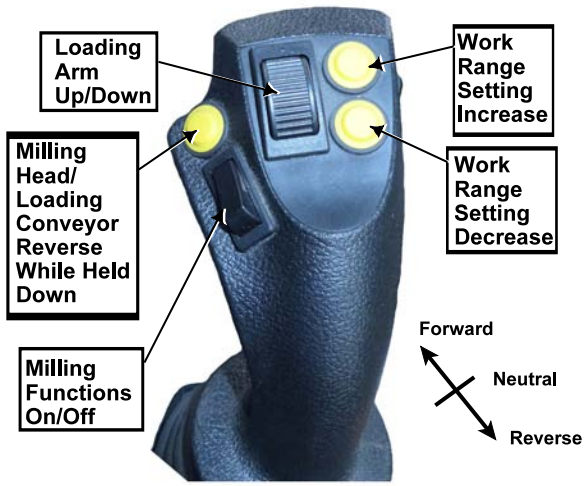



Clear Plugging from Conveyor Area 223335

Monitor Weight While Loading 223311

8. When the weight of material has been achieved as shown on the weigh scale display, reverse the milling head and the conveyor to move material back into the pile.

    - Press the momentary joystick button on the left side of the joystick to reverse the milling head and loading conveyor.
        - Release the button to resume milling head and conveyor movement.

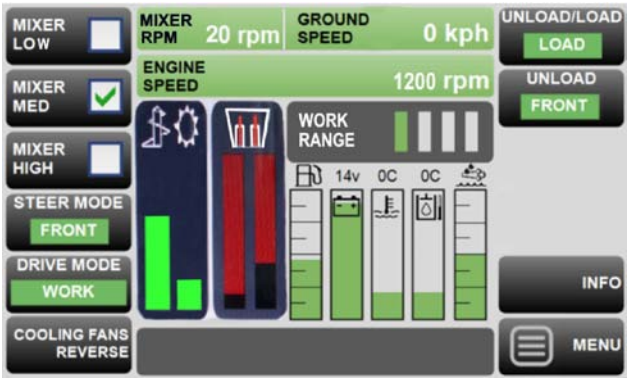


Joystick Load Functions 223193C1

<u>Loading Chopped Forage or Loose Grain with the Milling Head</u>

1. On the Display select Load to enable the joystick for milling functions.

2. Start the mixing screws by selecting a mixing screw speed on the Display.
    - The engine speed will increase to 1200 rpm.



Select Load and Mixer Speed 224121

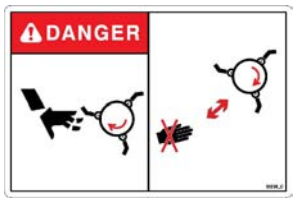
Do not enter the tub while the mixers are turning. Entering the tub when the mixers are turning will result in death or serious injury.

    - The mixer speed rpm presets can be adjusted.
        - See the Display Control Section 3, Menu, Operating Settings.

    - The Mixer RPM will be shown on the display beside the Ground Speed.

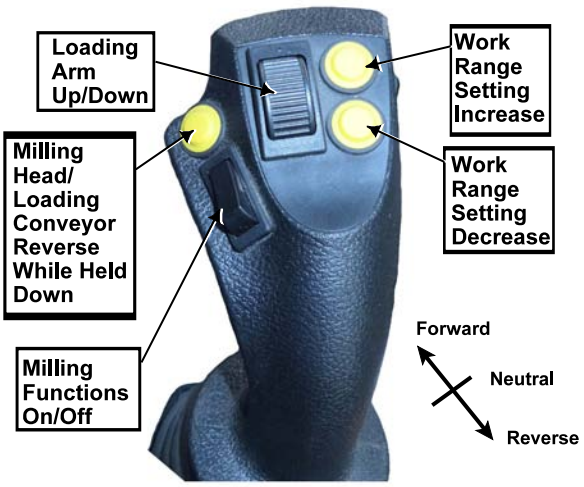
3. Start the milling functions.

Keep people back when loading with the milling arm.
Do not operate within 100 ft (30m) of any person.
Contact with the moving milling teeth and auger will cause serious injury or death.
Keep hands out of the milling area when the drum is rotating.



- Push the joystick button to turn the milling functions on.
  - The engine speed will increase to 2200 rpm.

Note: It is the operator's responsibility to ensure that the materials in the feed mix are suitable for livestock feeding.



Joystick Load Functions 223193C1

- The milling head speed and loading conveyor speed can be adjusted.
  - See the Display Control Section 3, Menu, Operating Settings.

! For chopped forage:

- Drive into the pile but do not have material go over the top of the milling head.

- Back up and lower the milling head and drive in again.

- Check the tub camera to ensure material is going into the tub and landing near the center of the tub.
  - Adjust the loading conveyor speed if needed to have the material land near the center of the tub.
    - The loading conveyor speed can be adjusted in Menu, Operating Settings.

Check Tub Camera for Material Landing Near the Center of Tub 223334

- Once the weight has been reached reverse the milling head and loading conveyor to clear the material out.

! For loose grain or fine material:

- Drive into the pile but do not have material go over the top of the milling head.

- Stop and let the material feed into the head.
  - If there is too much dust or material being blown forward, reduce the milling head speed until it loads better.
    - The milling head speed can be adjusted in Menu, Operating Settings.

  - If the material is loading too fast into the tub, reduce the loading conveyor speed to get a manageable weight gain.
    - The loading conveyor speed can be adjusted in Menu, Operating Settings.

4. Monitor the weight of material being loaded by watching the weigh scale display.

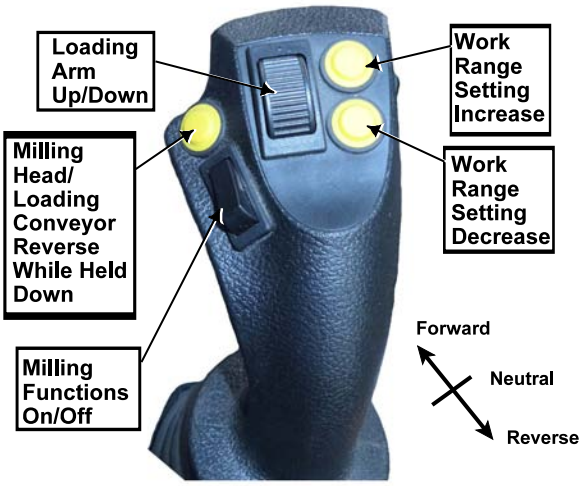
   Note: Refer to the weigh scale manual for information on using the weigh scale monitor.

   - Add materials according to the ration mix recommended by the animal nutrionist.

Monitor Weight While Loading 223311

5. When the weight of material has been achieved as shown on the weigh scale display, reverse the milling head and conveyor to move material back into the pile.

    - Press the momentary joystick button on the left side of the joystick to reverse the milling head and loading conveyor.
        - Release the button to resume the milling head and conveyor movement.

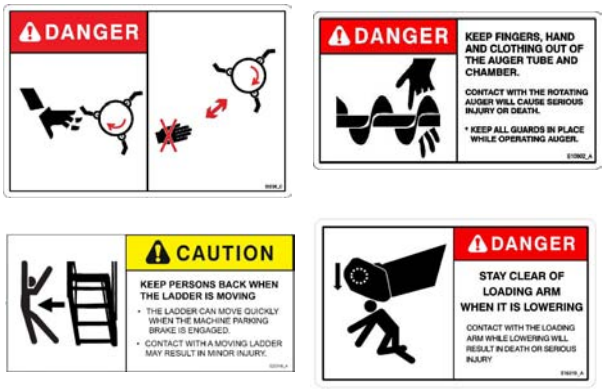


Joystick Load Functions 223193C1

Adding Mineral or Supplements

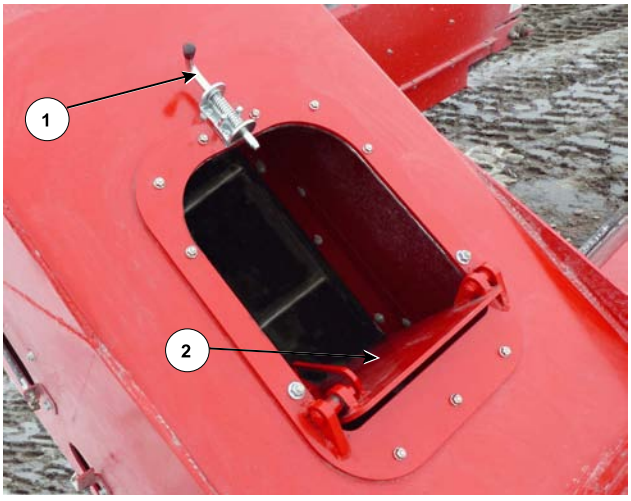
1. Load bag/pails of minerals or other supplements through the loading arm.

    Contact with moving milling teeth and auger will cause serious injury or death.
    Stand clear of the moving ladder.
    Stay clear of the moving loading arm.



    Before working around the milling head:
    - Park the machine on level ground.
    - Engage the parking brake.
    - Ensure the milling head is not rotating.
    - Lower the loading arm to the ground.
    - Have the mixing screws turning.

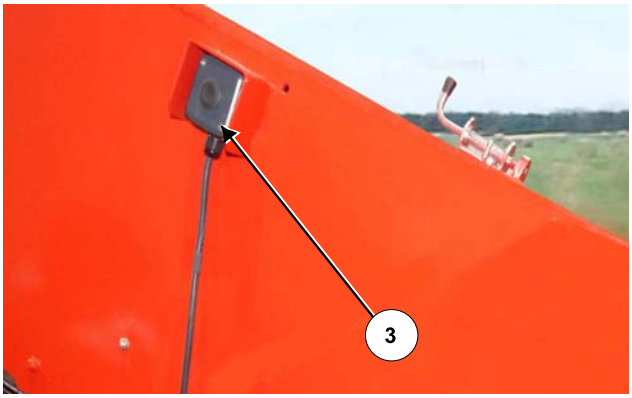
2. Open the access panel (2) on the top of the arm.
    - Pull the spring loaded lever (1) .
    - Move the access panel (2) downwards to help direct the material onto the conveyor.



Open the Access Panel for Adding Minerals 220076C

3. Press the switch (3) on the side of the loading arm near the loading door to start the loading conveyor.

    - To set the speed of the loading conveyor:
        - Select Menu and Operating Settings.
            - Select Mineral Loading Belt Speed.
            - Use the selector knob to set the speed.

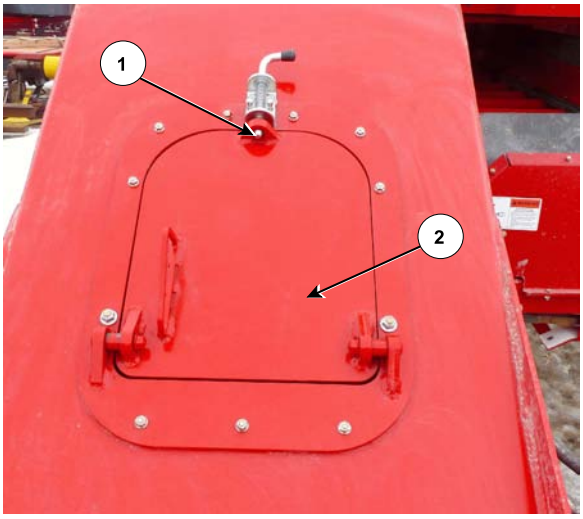


Loading Conveyor Switch 223338C

4. Pour the minerals/supplements through the access panel opening according to the ration mix.

    Note: It is the operator's responsibility to ensure that the materials in the feed mix are suitable for livestock feeding. The mineral/supplement packaging material will be discharged with the feed if the packaging materials are allowed to enter the loading arm.

5. Close the access panel (2) and fasten with the spring loaded lever (1).



Close and Fasten Access Panel 220077C

<u>Adding Materials Using Another Machine or Under Augers or Piping</u>

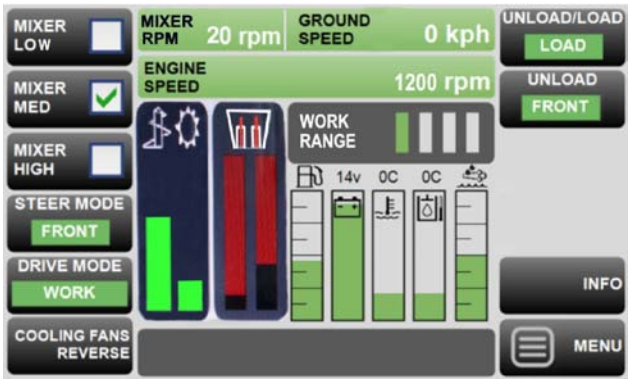
Materials can be added over the edge of the tub wall or from a bin.

1. Start the mixing screws by selecting a mixing screw speed on the Display.
    - The engine speed will increase to 1200 rpm.

Do not enter the tub while the mixers are turning. Entering the tub when the mixers are turning will result in death or serious injury.

- The mixer speed RPM presets can be adjusted.
  - See the Display Control Section, Menu, Operating Settings.

- The actual Mixer RPM will be shown on the display.



Select a Mixing Screw Speed 224121

2. Have materials added by another machine over the side of the tub wall.

   Note: It is the operator's responsibility to ensure that the materials in the feed mix are suitable for livestock feeding.

Materials Loaded by Another Machine 223346

3. When loading from overhead augers or piping, drive under the output so that the material will land near the center of the tub.

   - CRAB steering can be utilized to get closer to the output.

     - Press Steer Mode on the Display and toggle for CRAB steering.
       - The wheels need to be close to centered to select CRAB steering.
         - Refer to the steering display for the wheel angles.

Loading From Overhead Augers 224059

4. Monitor the weight of material as it is added by watching the weigh scale display.

   Note: Refer to the weigh scale manual for information on using the weigh scale monitor.

   - Add materials according to the ration mix recommended by the animal nutrionist.

5. When the weight of material has been achieved as shown on the weigh scale display, signal the operator of the loading machine that sufficient material has been added.

Monitor Weight While Loading 223311

Raise Arm to Travel Position 223326

Driving to the Feeding Site
(Not Public Roads)

1. Raise the milling arm to a suitable position to allow travel and give a clear view for driving.

   Stand clear of the loading arm. Contact with the loading arm will result in death or serious injury.

   - Select Load on the Display to enable the joystick to raise the arm.

   - Use the joystick button to raise the loading arm to a travel position.

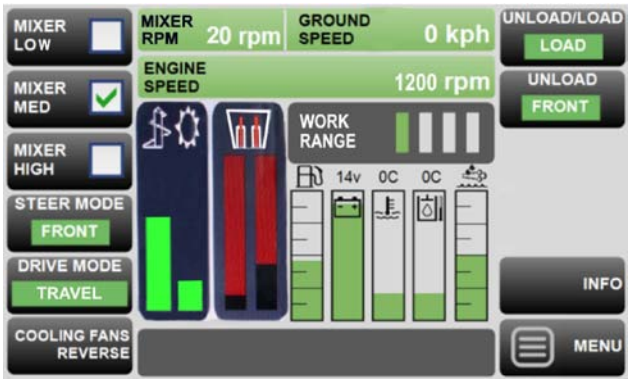
Joystick Load Functions 223193C1

2. If wanting Work as the Drive mode have the wheels near to centered to select Front Steer.
    - Refer to the Steering Display for the wheel angles.
    - Toggle the Steer Mode button for Front Steer.

3. If wanting Travel as the Drive mode.
    - Bring the machine to a full stop.
    - On the Display press Drive Mode until Travel is displayed.
        - Front wheel steer mode is automatically engaged when Travel Mode is selected.
        - Milling functions are disabled in Travel mode.
        - Unload functions are disabled in Travel mode.

Select Travel Mode 224109

4. Select a mixer speed to have the mixers turning while driving to the feeding site:
    - To completely mix the materials.
    - To prevent the load from settling and compacting.



Select a Mixer Speed 224109

Note: If traveling long distances to the unloading site, be aware that having the screws turning quickly may:
- Cut the material more than desired.
- Cause material to separate out from the mix.

- Consult with the animal nutrionist for the appropriate mixing time.

- If the screws are turned off while traveling, be aware that the load may settle, especially with larger loads.
  - Load settling may make it more difficult for the screws to begin rotating again or not at all.
  - If material in the tub has settled so that the mixers do not turn, refer to "Removing Settled Material That Is Causing the Mixing Screws To Not Turn" in this section.

Keep the Mixing Screws Turning 219285

5. Use the joy stick to control direction and speed of travel.
   - Push the joystick forward for forward travel.
     - The more the joystick is pushed forward the faster the machine will travel.
     - The engine goes to 1200 rpm and scales proportionally with joystick position up to 1800RPM.

   - When the joystick is pulled back the machine will slow down until the joystick is moved into the neutral position.

Move Joystick for Forward Motion 223318

- To backup pull the joystick backward.
  - The more the joystick is pulled backward the faster the machine will travel backward.

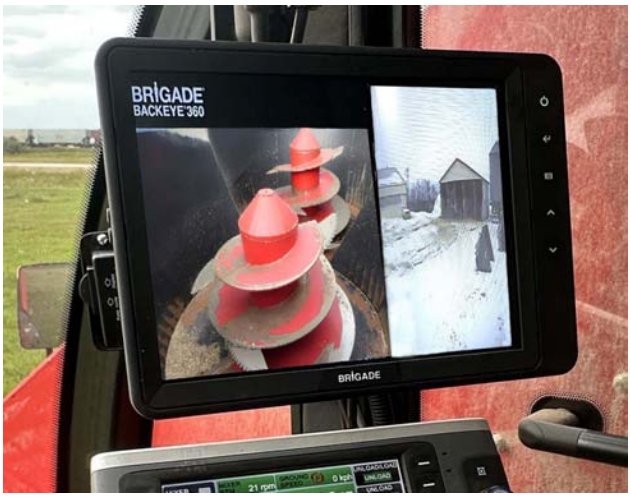
  - When backing up, the backup camera view will show on the display.

- The backup camera will also display on the camera monitor.

Backup Camera in the Display 223413

- Adjust the speed according to the terrain to maintain control and have the machine stable at all times.

Note: It is the operator's responsibility to decide if the weather, road or ground conditions permit safe operation on a hillside, slope, rough, slick or muddy surfaces.



Backup Camera on Camera Display 223315

6. Maximum travel speed:

- The maximum speed in Travel mode is 25 mph (40 kph).
- The speed in the Work Range selected is preset up to 15.5 mph (25 kph).
  - See Section 3 for setting Work Range Speeds.


Travel to Unloading Site 224065

If traveling with the arm raised high, be aware of overhead surroundings.

A raised arm can contact overhead objects which will result in death or serious injury.
Arm contact with objects will result in machine damage.

Unloading the Mix

1. Leave the milling arm in the travel position to give visibility when driving.

2. Drive into the feeding lane or field with the mixing screws turning.

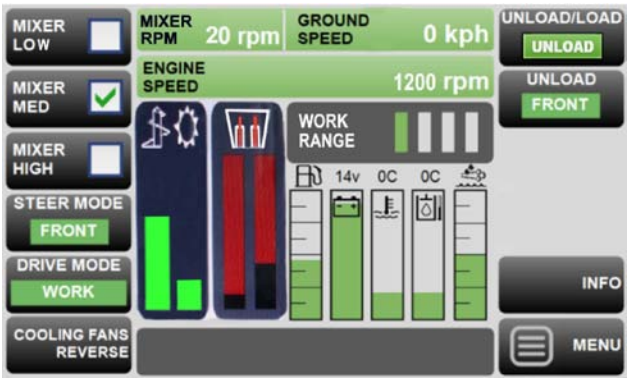
3. Toggle the Drive Mode on the display to select Work as the drive mode.

4. Toggle Unload/Load on the to select Unload.

5. Press Unload and toggle between Unload Front, Unload Rear or Unload Front and Rear to select which tub doors and conveyors to unload from.
   - The joystick will control the doors and the conveyors.

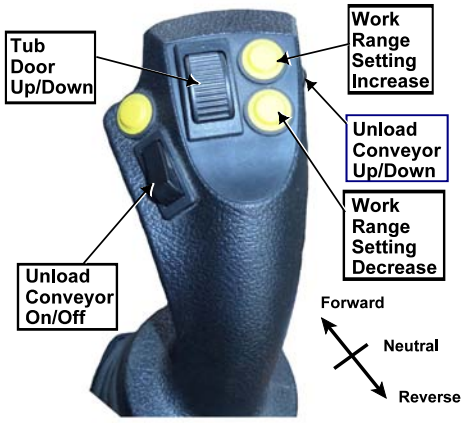
6. Lower the discharge conveyor or drop chute using the joystick button.

Stay clear of the bunk unload discharge conveyor or drop chute when it is lowering.
Crushing could cause serious injury or death.



Select Work Drive Mode
Choose Unload

224115



Joystick Unload Functions

223193C2

Lower the Conveyor

224060

Lower the Drop Chute 224061

7. If bunk feeding, adjust the height of the discharge conveyor to feed into the bunk.

Raise Conveyor for Bunk Unloading 223350

8. Turn on the unloading conveyors with the joystick button.

Stand Clear of the Unloading Conveyor
Keep body and clothing away from moving parts to prevent serious injury or death.

Start the Unload Conveyor 223314

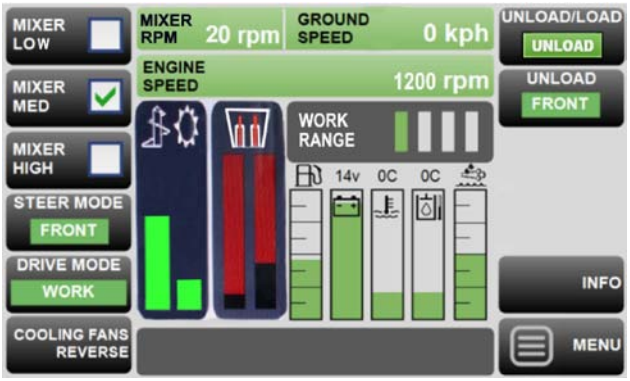
9. Use the joystick thumb control to raise the tub door.

   - The display shows which tub doors are open and how much they are open.

   - The amount the door is opened will control the amount of feed exiting the mixing tub.

   - The diagram on the display shows which tub doors are open and how much they are open.

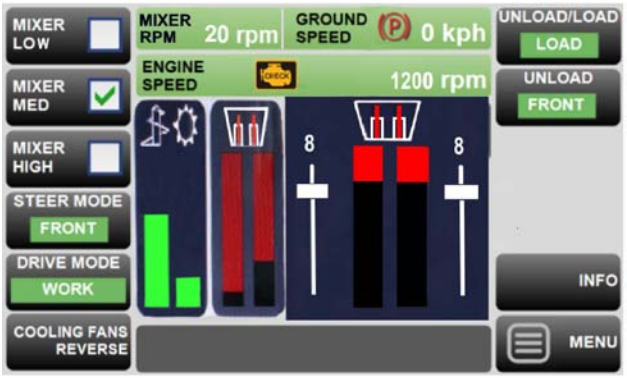
Joystick Unload Functions - 223193C2



Center Column - Overall Information 224115

   - Tapping on the tub door image on the display will open a screen that allows setting of favorite tub door heights.
     - Move the slider to set a favorite door height setting.
       - Tap anywhere else on the screen to set the favorite setting.

   - The favorite tub door setting is activated by using the joystick button to raise/lower the door.
     - The door will stop at the favorite setting.
     - If more movement of the discharge door is desired, press the joystick button again to move past the favorite setting.



Favorite Discharge Door Settings 223098

10. Drive forward to distribute the feed at feed stalls or in the field.

    - Pushing the joystick forward, the engine goes to 1200 rpm and increases proportionally with joystick position up to 1800RPM.

If traveling with the arm raised, be aware of overhead surroundings.
A raised arm can contact overhead objects which will result in death or serious injury.
Arm contact with objects will result in machine damage.

11. Control the amount of feed discharged by adjusting the following:

    - Tub door opening
    - Mixer speed
    - Driving speed


Unload at Feeding Stalls or in Field 224060

12. Monitor the scale indicator readings to evaluate the ration distribution to the unloading areas.

    Note: Refer to the weigh scale manual for information on using the weigh scale monitor.

Monitor Ration with Weigh Scale 223311

13. At the end of feeding empty any material remaining in the mixing tub to prevent it from settling and compacting.

Stopping the Engine

Before stopping the engine after operating under load, idle the engine at a slower speed to cool hot engine parts.

- This idling time allows the engine and turbo charger temperature to decrease gradually.

- If the engine stops when operating under a load, start the engine immediately to prevent heat build up which is caused by the lack of coolant flow.

1. Slow the unit and bring the machine to a complete stop by moving the joystick control handle to the neutral position (1).

2. Press on the brake pedal.

3. Apply the parking brake switch (2).

   - The stairway will move outward when engaging the parking switch.

   - The engine speed will go to 1000 rpm.

Keep Persons Back When the Ladder Is Moving
The ladder can move quickly when the machine parking brake is engaged.
Contact with a moving ladder may result in minor injury.

4. Idle the engine for 3 to 5 minutes.

5. Turn the key switch to the Off position to stop the engine.
   - Remove the key from the switch.

Joystick to Neutral, Park Brake On, Throttle Low Speed
223318C

Engine Speed Control

Removing Settled Material That Is Causing the Mixing Screws To Not Turn

This process involves running one screw at a time to allow the screw drive motor to move less material.

Shut down the engine before dismounting machine. Remove the key before doing this procedure.

1. Turn off the battery switch (1) and lock it to prevent accidental starting of the machine.
   - If the engine has been running, wait until the amber light (2) goes out before turning the battery switch to ensure the engine emission cycle is complete.

2. Block the wheels of the machine to prevent any movement.

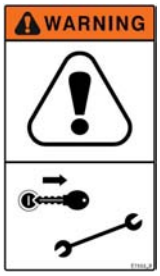
<u>Disconnect the rear screw to empty the rear part of the tub:</u>

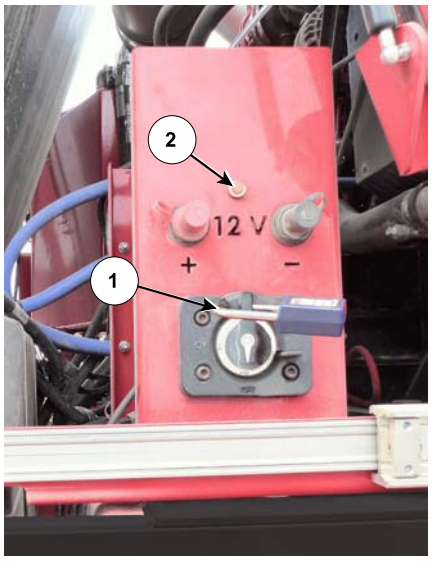
1. From underneath the machine disconnect the driveline coming out of the rear screw gearbox.
   - This will allow the rear screw to turn by itself.

   - If needed, place a pipe wrench on the square sliding portion (1) of the drive line.
     - Remove any torque that may be preventing the driveline quick connect (2) from being released.

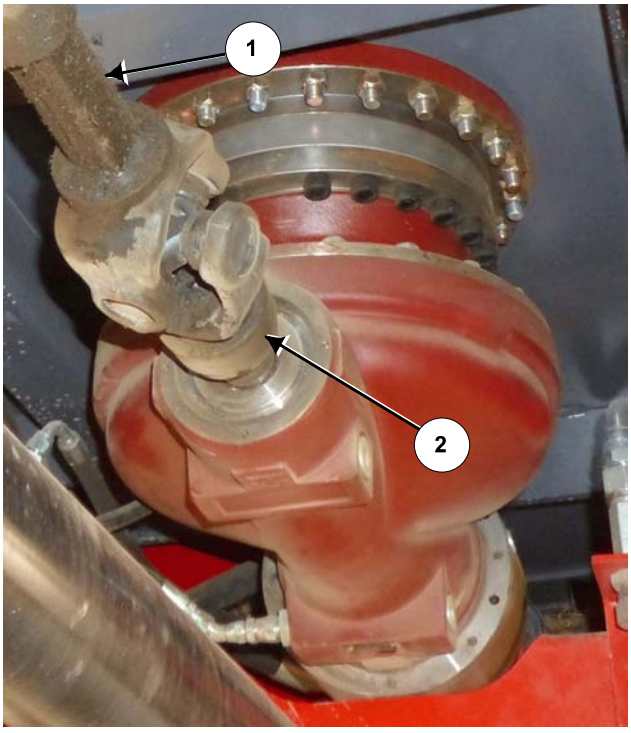
   - Release the driveline quick connect (2) from the rear screw gearbox.
     - Slide the driveline back.
     - Support the driveline.

2. Unlock and turn on the battery switch.





Turn Off Battery Switch and Lock 223299C.



Disconnect Rear Screw Driveline 219375C2

3. Start the engine of the machine.

4. Select Unload and Rear on the display to allow material to discharge from the rear part of the tub.

5. Lower the unload conveyor/drop chute.

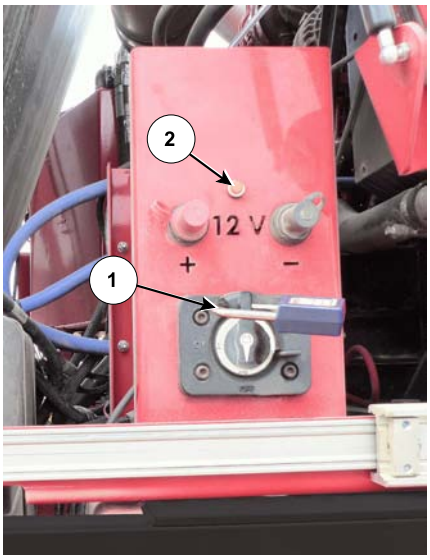
6. Open the rear tub door using the joystick.
   - Do not enter the tub when the screw is turning.

7. Start the rear conveyor using the joystick.

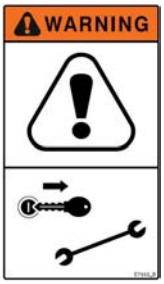
8. Start the rear mixing screw to remove material in the tub.
   - The engine speed will go to 1200 rpm.

9. Close the tub door when finished unloading.

10. Raise the unload conveyor/drop chute.



Turn Off Battery Switch and Lock 223299C.

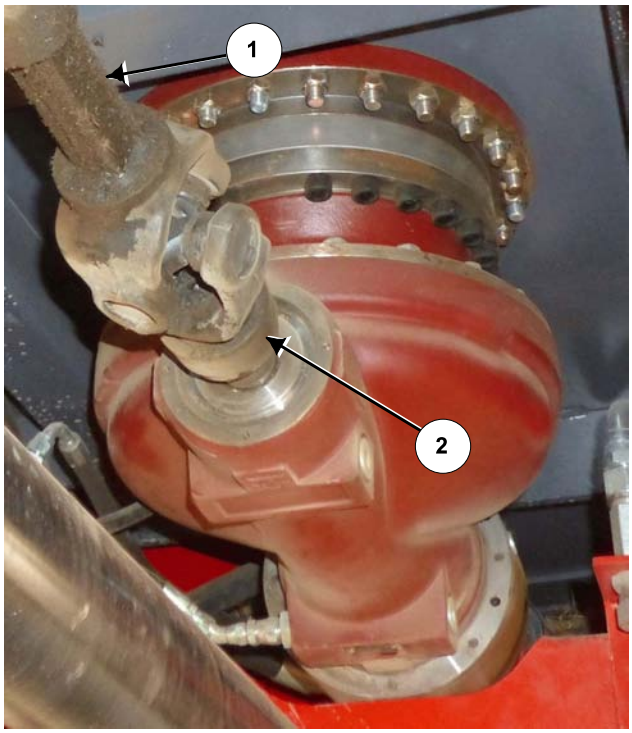


<u>Reconnect the rear screw driveline to empty the front part of the tub with the front screw:</u>

Shut down the engine before dismounting machine. Remove the key before doing this next procedure.

1. Turn off the battery switch and lock it to prevent accidental starting of the machine.
   - If the engine has been running wait until the amber light goes out before turning the switch to ensure the engine emission cycle is complete.

2. From underneath the machine reconnect the driveline to the rear gearbox.
   - Attach the driveline quick connect (2) to the rear screw gearbox.



Reconnect the Driveline to Rear Screw 219375C2

3. Start the engine of the machine.

4. Select Unload and Front on the display to allow material to discharge from the front part of the tub.

5. Lower the front unload conveyor/drop chute.

6. Open the front tub door using the joystick.
   - Do not enter the tub when the screw are turning.

7. Start the front conveyor using the joystick.

8. Start the mixing screws to remove the remaining material in the tub.
   - The engine speed will go to 1200 rpm.

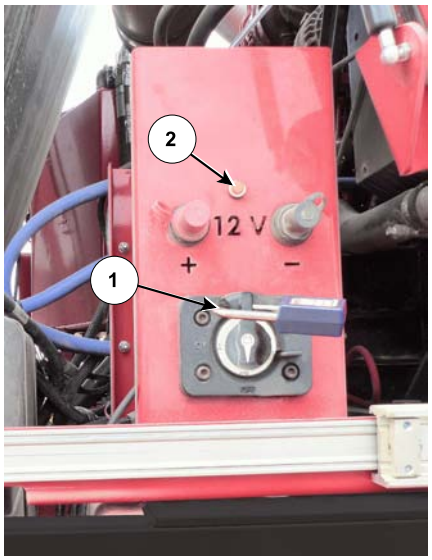
9. Close the tub door when unloading is finished.

10. Raise the unload conveyor/drop chute.

<u>Align the screws in the tub:</u>
After all the material is removed from the tub the screws need to be positioned in the same orientation to each other.

Shut down the engine before dismounting the machine. Remove the key before doing this next procedure.

1. Turn off the battery switch (1) and lock it to prevent accidental starting of the machine.
   - If the engine has been running wait until the amber light (2) goes out before turning the switch to ensure the engine emission cycle is complete.

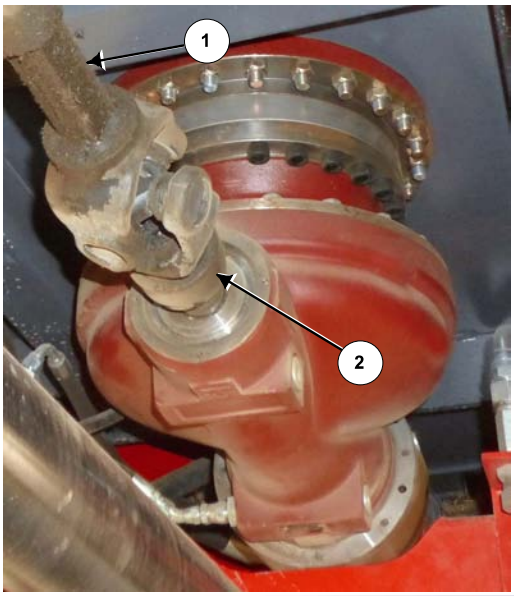


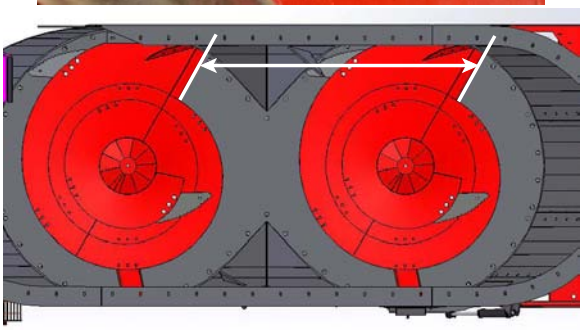
Turn Off Battery Switch and Lock 223299C.

2. From underneath the machine disconnect the driveline coming out of the rear screw gearbox.
   - If needed, place a pipe wrench on the square sliding portion (1) of the drive line.
     - Remove any torque that may be preventing the driveline connect (2) from being released.

   - Release the driveline connect (2) from the screw gearbox.
     - Slide the driveline back.
     - Support the driveline.

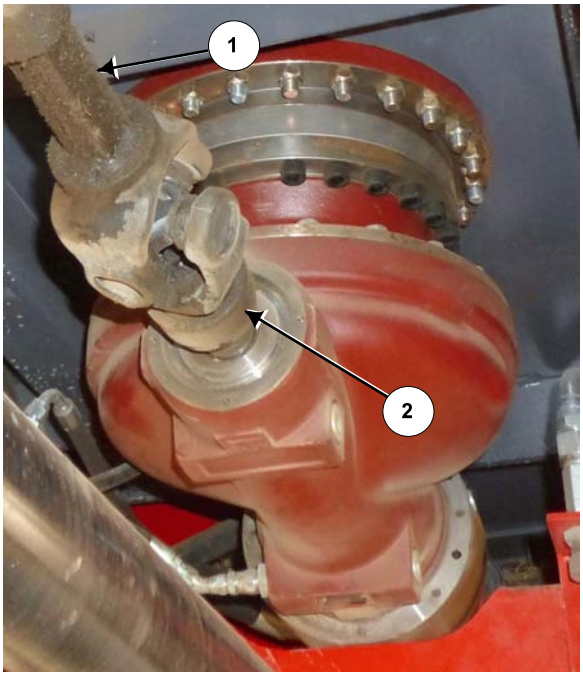
3. Use a pipe wrench on the front gearbox shaft to turn the front screw so that the leading edge of the front screw is in the same rotational position as the rear screw leading edge.
   - Take care to not damage the splines on the gearbox shaft.





Leading Edge of Screws in Same Position 219342C

4. From underneath the machine reconnect the driveline (2) at the rear gearbox.



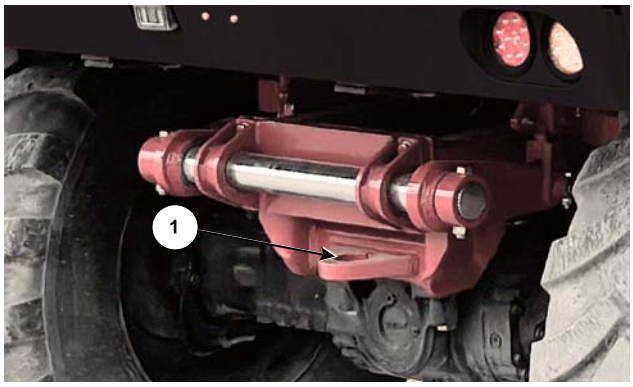
Reconnect Driveline to the Screws 219375C2

Towing the Accumix

If the Accumix needs to be towed :

! With the Engine Running
- The engine will provide oil pressure for the steering valve and the brakes.

1. Block the wheels so the vehicle will not move.
2. Connect an appropriate rated towing chain to the towing cut out (1) in the front or rear axle support.
3. Release the parking brake.
4. Remove the wheel blocks.
5. Connect to the towing vehicle.
6. Tow at a slow speed to maintain control.



Towing Point 223354C

! Without the Engine Running
- The steering can be used but it will not be power steering. A fair amount of force will be needed to steer.

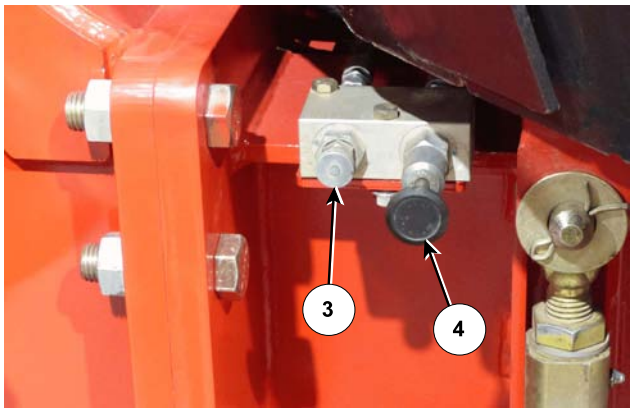
1. Block the wheels so the vehicle will not move.
2. Connect an appropriate rated towing chain to the towing cut out (1) in the axle support.
3. Connect to the towing vehicle.

4. Release the parking brake with the manual hand pump located on the frame near the ladder going into the cab.
   - Press in the small round plunger (3) and keep it held in.
   - Pump with the large handled plunger (4) until there is pressure resistance.
     - This pumping action will release the parking brake inside the axles.

5. Release the small plunger (3).

6. Remove the wheel blocks.

7. Tow at a slow speed to maintain control.



Manual Hand Pump to Release Parking Brake 223353C

Table of Contents for Section 7 - AccuMix AMX1000s Maintenance

Shut down the machine, disconnect the battery and lock it out before repairing, servicing, lubricating or cleaning the machine.

Engine Air Filters

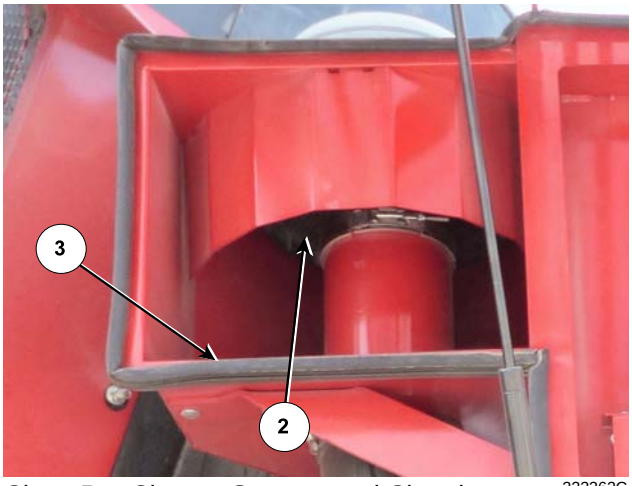
The engine uses a filter system consisting of a pre-cleaner and two air filters inside the air intake tank.

! Pre-Cleaner

- Open the engine cover.
- Open the screen door covering the pre-cleaner and radiators by moving the center latch (1) .

Open the Screen Cover for Pre-cleaner Access 223361C

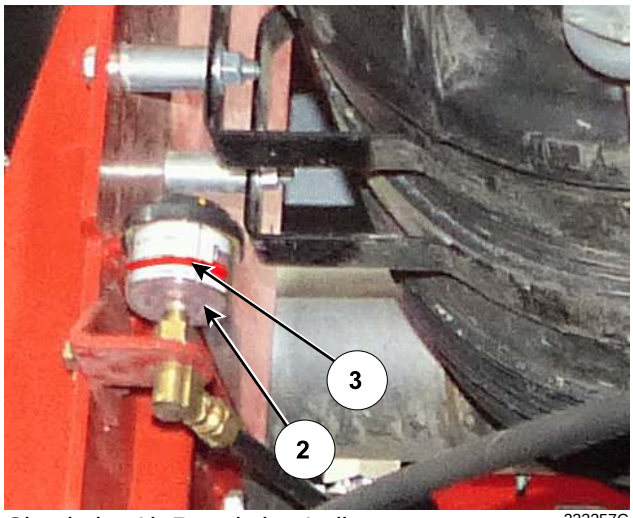
- Remove debris from the bottom pre-cleaner screens (2) and debris laying on the floor of the chamber (3).
- Close the screen door and latch with the center latch (1).



Clean Pre-Cleaner Screens and Chamber 223362C

! Air Filter Restriction Indicator

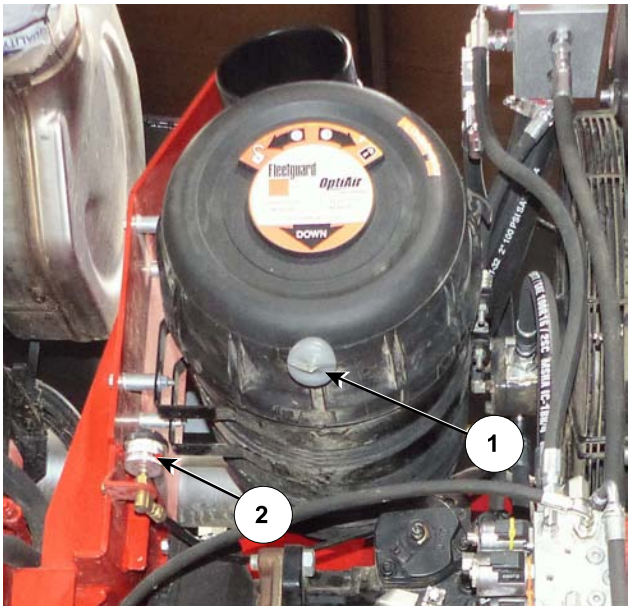
- If the air restriction indicator (2) shows red in the middle band (3), the filters are restricted and need servicing.
- Replace both filters using the instructions given below.



Check the Air Restriction Indicator 223357C

! Air Filter Canister

- Squeeze the rubber nozzle (1) on the front of the air cleaner canister to remove large particles and moisture.



Engine Air Filter and Restriction Indicator 223356C

Avoid contact with hot surfaces.
Allow a cool down time before touching or servicing.
Failure to comply could result in death or serious injury.

! To replace the air filters in the air canister:

Note: Both primary and secondary filters must be replaced at the same time.

- Open the air canister lid latch handle.

- Turn the outer cover of the air tank to the unlock position as shown on the decal.
  - Remove the cover.

- Remove the primary air filter element (4).
  - The primary filter is a rubber friction fit.

- Remove the secondary air filter element (5).
  - The secondary filter is a rubber friction fit.

- Wipe the inside of the filter cannister with a rag to remove any built up dust.
  - Clean the cover.

- Insert the new secondary filter (5).

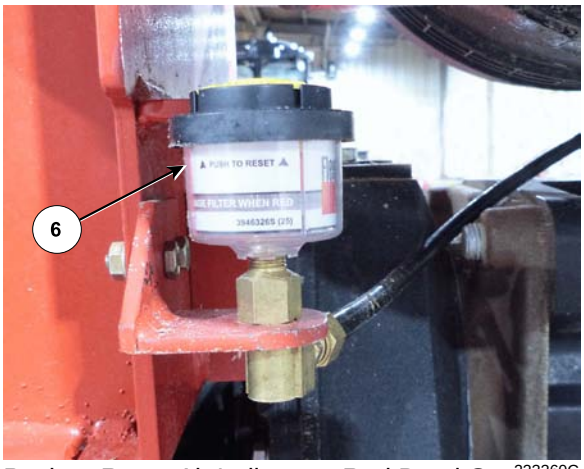
- Insert the new primary filter (4) over the secondary filter (5).

- Replace the canister cover.
  - Turn it to the lock position.
  - Close the latch handle.
  - Ensure the rubber nozzle is pointing down.

- Reset the air restriction indicator after the filters are replaced.
  - Press the top button (6) on the indicator to reset.
    - The red should be gone from the middle band when the reset button is pushed.

Remove the Primary Filter Element 223358C

Remove the Secondary Filter Element 223359C



Push to Reset Air Indicator - Red Band Gone 223360C

Engine Fuel Tank

1. Drain the fuel tank sump.

   Water in the fuel can cause wear on the fuel system.
   - Water may get into the tank when the tank is being filled.
   - Condensation occurs with the heating and cooling of fuel.

   - After the fuel tank has been filled, allow the fuel to settle for ten minutes.
     - This will allow the water and sediment to separate from the fuel.

   - Drain the water and sediment from the tank.

   <u>To drain the water and sediment</u>:

   The bottom of the fuel tank has a nut (1) with a removable plug.
   - Inside the nut is a ball check valve.

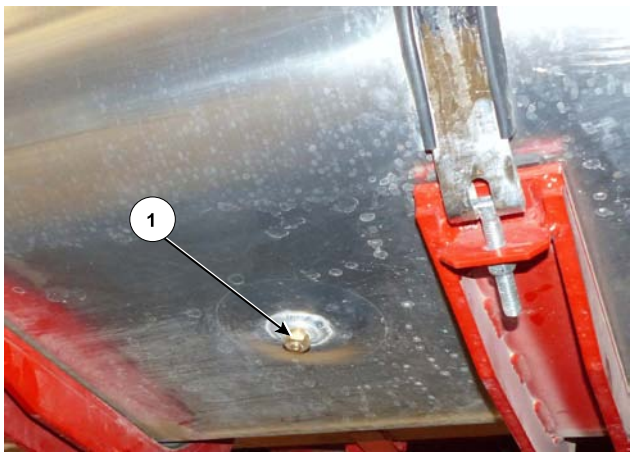
   - Remove the plug from inside the nut with an allen wrench.

   - Use the allen wrench to push up into the plug to release the ball check valve so that water and sediment will drain from the tank.

   - Drain until clean fuel flows from the tank.

   - Replace the plug into the nut (1).

Drain Water From the Fuel Tank 223364



Drain Water and Sediment from the Fuel Tank 219214

Engine Fuel Filters

Change the engine fuel filters as specified in this manual to protect the engine from debris and water.

Shut down the machine, disconnect the battery and lock it out before repairing, servicing, lubricating or cleaning the machine.

1. Fuel Filter
   - The fuel filter (4) is mounted on the engine near the engine radiator.
     - Change the primary fuel filter at the recommended intervals. (See Maintenance Interval Chart).

2. Fuel/Water Separator Filter
   - The fuel/water separator filter (5) is mounted on the engine next to the primary fuel filter.
   - A water-in-fuel sensor that is at the bottom of the fuel filter will show a “water in fuel” warning on the display.
     - Refer to the Cummins engine manual for the procedure to drain the water from the separator.

Primary Fuel and Water Separator Filters 223363C

3. Crankcase Breather

   - The crankcase breather hose (6) is mounted on the engine next to the fuel/water separator filter.

   Note: In cold weather operation check that the breather hose has not frozen with moisture from the crankcase.

Crankcase Breather Hose 223365C

Engine Oil

1. Engine oil grade and viscosity.
   - Use the oil viscosity appropriate for the ambient temperature the machine will be used in. See the chart below and Section 9..

   Note: Refer to the Cummins Owner Manual for more information on engine oil grade and viscosity.

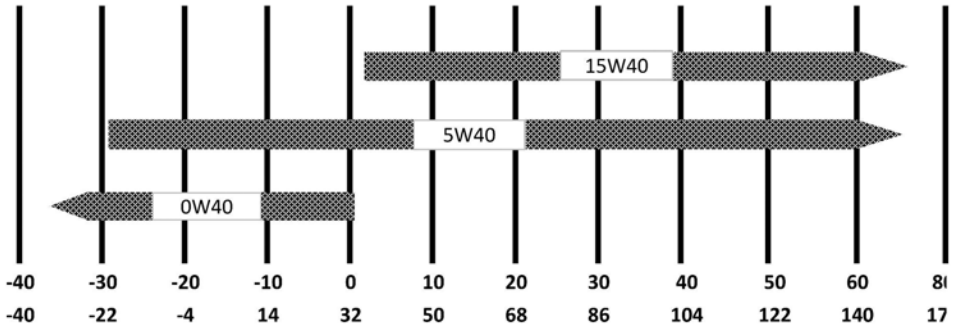


Chart Adapted from Cummins Engine Owners Manual

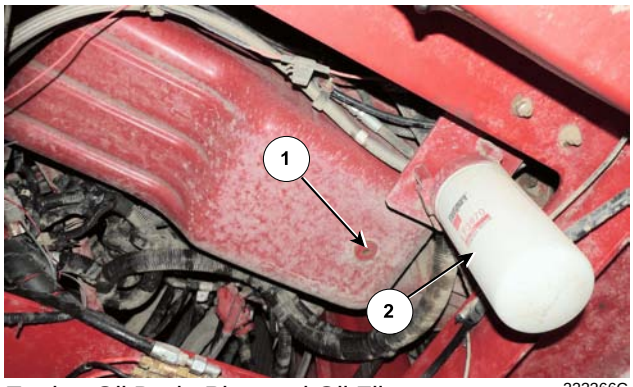
2. Changing Engine Oil

Shut down the machine, disconnect the battery and lock it out before repairing, servicing, lubricating or cleaning the machine.

Note: Refer to the Cummins Owner Manual for more information on changing the engine oil and filter.

- The standard engine oil and filter change period is 500 hours. (See the Maintenance Interval Chart)

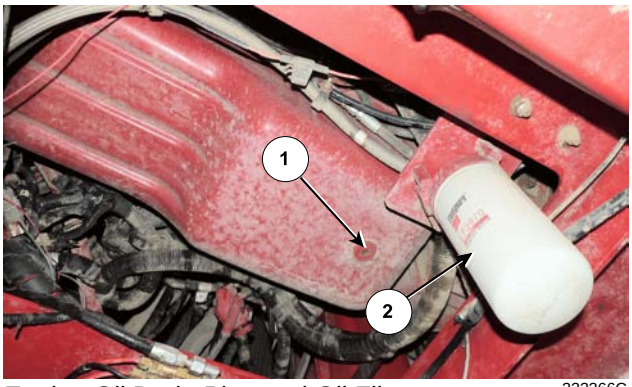
- The engine oil drain plug (1) and oil filter (2) are located at the bottom of the engine at the rear of the machine.
  - To access the oil drain plug (1), reach up through the opening in the frame under the engine.



Engine Oil Drain Plug and Oil Filter 223366C

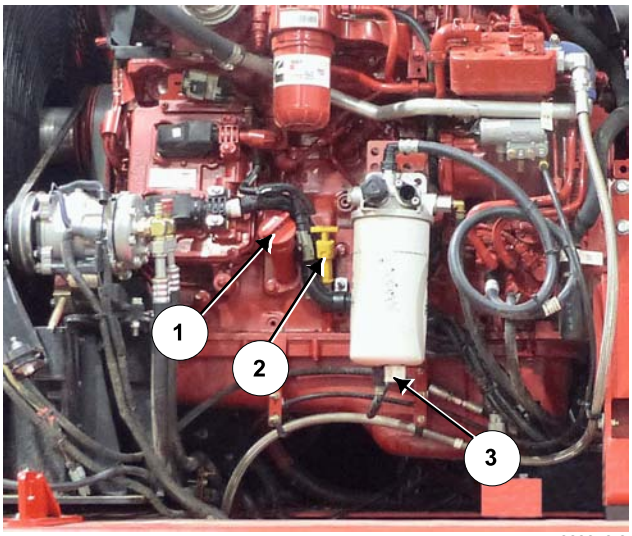
- Drain the oil when it is warm to remove any waste particles that are suspended in the oil.
- Position an oil catch basin with at least a 16.7L (4.4 US gallons) capacity.

- The engine oil filter (2) is located near the engine oil plug.
  - To change the oil filter, reach up through the opening in the frame under the engine.
  - The filter must be changed with every oil change.
  - Spin off the filter (2).
  - Replace the filter with the filter recommended by Cummins.
    - (See the Cummins engine manual for recommendations.)
    - Place some oil on the filter's rubber seal before installing the new filter.



Engine Oil Drain Plug and Oil Filter 223366C

3. Adding Engine Oil
   - Use the type of oil recommended in the Cummins engine manual.
   - Refer to the viscosity chart above for the oil to use for the ambient temperature ranges.
   - Add oil through the filler cap (1).
     - Add oil to the full mark on the oil level dipstick (2).
       - Oil capacity for the total system is 16.7 L (4.4 US gallons)



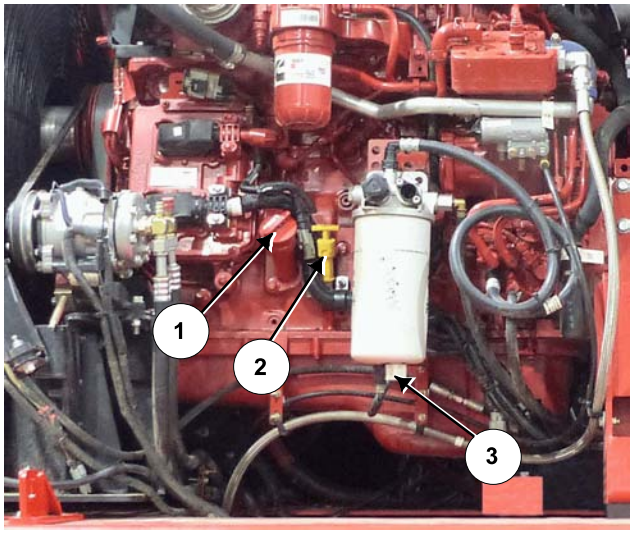
Adding Engine Oil Level 223252-2

- Start the engine and run at a low idle for two minutes to ensure that the lubrication system has oil and the oil filters are filled.

- Stop the engine and allow the oil to drain into the oil pan for 10 minutes.

- Remove the oil level gauge (2) to check the level.
  - Maintain the oil level between the low and high marks on the gauge.

Note: Do not fill the crankcase above the high mark on the level gauge.



Adding Engine Oil Level 223252-2

Engine Coolant

1. An engine coolant mix of water and ethylene glycol must be used in all climate conditions to provide both freeze and boil point protection and prevent cylinder liner pitting.

   - Cummins recommends a 50/50 mixture of good quality water and a fully formulated antifreeze.
     - See the Cummins Owners Manual for information on good quality water.

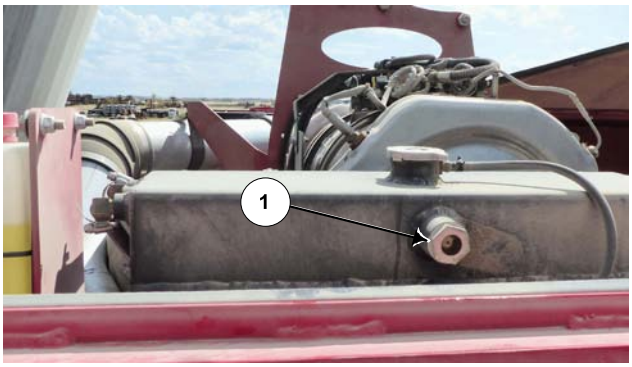
   - A 50/50 mixture of water and antifreeze gives a -36^0 C (-33^0 F) freezing point and a 108^0 C (226^0 F) boiling point. (Taken form the Cummins Owners Manual)

- Only use diesel coolant in the engine.
  - Do not use automotive-type coolants which do not contain the correct additives to protect heavy-duty diesel engines.

2. Check the level of the engine coolant.

   - Open the engine cover.

   - Check that the coolant is visible in the radiator sight glass (1).



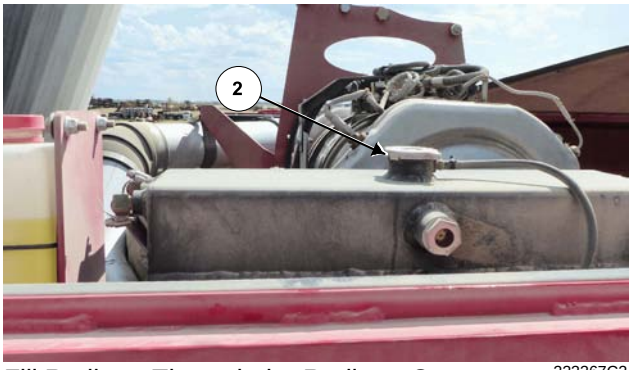
Check the Coolant Level through the Radiator Sight Glass

223367C

Avoid contact with hot surfaces. Allow a cool down time before touching or servicing.
Failure to comply could result in death or serious injury.

3. If the coolant level is not visible in the sight glass, remove the radiator cap and fill with the 50/50 engine coolant mix.

   Note: Do not fill with coolant into the overflow container.



Fill Radiator Through the Radiator Cap

223367C2

Do not open the engine radiator cap while the engine is hot. The radiator contains hot fluid under pressure.
Contact with hot fluid could result in serious injury.

Wait until the radiator is cool. Loosen the cap slowly to relieve pressure.

4. Change the engine coolant at the recommended change interval. (See the Maintenance Interval Chart)

   - The heat generated by the diesel engine causes a natural change in the inhibitors in the coolant.

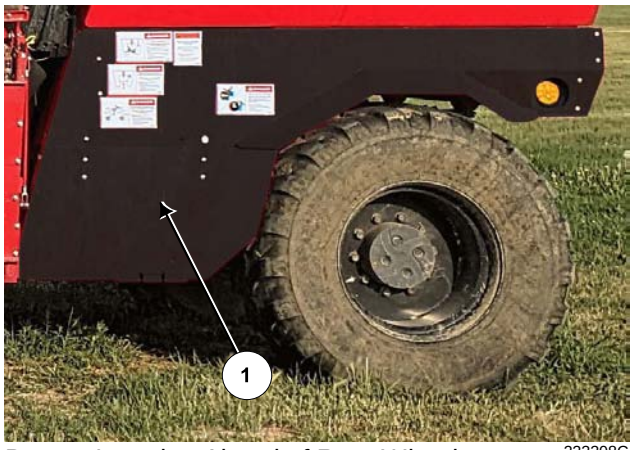
   - Refer to the Cummins Service Interval list for coolant change recommendations.

   - Refer to the Capacities Chart in Section 9 for the amount of coolant required.

Batteries

The batteries are located inside a compartment (1) located between the left rear conveyor and left rear tire.

1. To check on the batteries remove the fasteners to remove the cover panel (1).



Battery Location Ahead of Rear Wheel 223308C

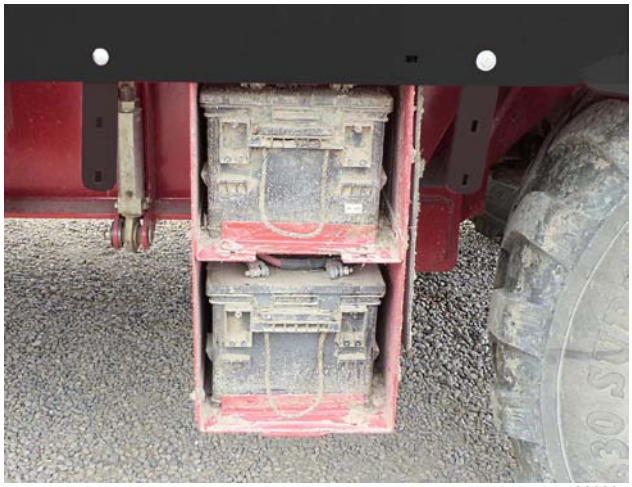
2. Battery terminals and cables
   - The battery cable terminals must be kept clean and tight.
     - Remove all corrosion with a wire brush, then wash with a weak solution of water and baking soda or ammonia.

   - Inspect the battery cables for damage.
     - Replace any battery cable that has damage.

3. Battery fluid level
   - Add distilled water as needed to keep the separators under water.

4. If needing to charge the batteries, only use a 12 volt battery charger.

   - Charge at the lowest rate possible to reduce gas formation.
   - Do not charge a frozen battery.



Batteries 223301

Explosion hazard!
Keep batteries at full charge to prevent frozen battery electrolyte. Never charge a frozen battery.
Do not attempt to jump-start the engine if the battery is frozen. Attempting to do so may cause the battery to explode that could result in death or serious injury.

Fuses

There are 4 locations for the fuses on the machine.

- 2 fuse boxes on the back left outside of the cab.

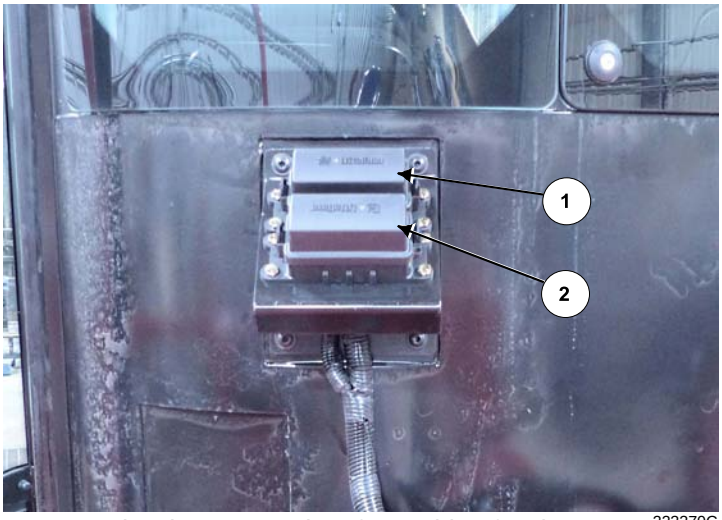
- 1 fuse box behind the battery turn on/off switch in the engine compartment.

- 1 fuse box in the cab under the console (for cab functions)

! Fuse/Relay - 2 Boxes on Back Left Outside of Cab

- Note: Refer to the decal under the cover of the fuse box for the use and the amperage of the fuses. For reference the fuses and relays are shown below.

Turn off the battery switch before changing any fuse.



Fuses and Relays on Back Left Outside of Cab 223370C

Upper Fuse/Relay Box (1)

R1 KEYED CRITICAL SENSORS	F1 - 5A KEYED CRIT SENSORS F2 - 5A KEYED NON-CRIT SENSORS	R2 KEYED NON-CRIT SENSORS	R5 SWITCHED HEADLIGHTS	F5 - 10A SWITCH HEADLIGHTS F6 - 10A SWITCHED AUX1 LIGHTS	R6 SWITCHED AUX1 LIGHTS
R3 KEYED PWR OUTLET	F3 - 10A KEYED PWR OUTLET F4 - 10A KEYED RUN LIGHTS	R4 KEYED RUNNING LIGHTS	R7 SWITCHED AUX2 LIGHTS	F7 - 10A SWITCHED AUX2 LIGHTS F8 - 10A KEYED GREASE SYSTEM	R8 KEYED GREASE SYSTEM
F9 - 10A POWER OUTLET	F10 - 10A SIGNAL MODULE	F11 - 5A KEY POWER SUPPLY	F12 UNUSED	F13 UNUSED	F14 UNUSED
E23922_A					

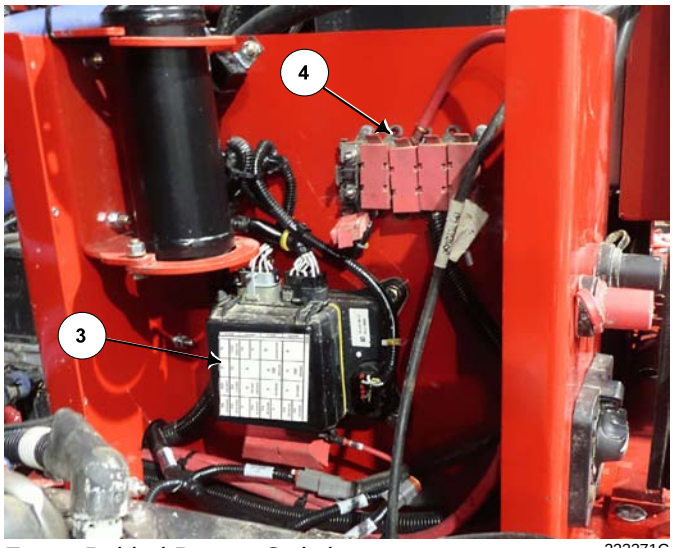
Lower Fuse/Relay Box (2)

	R12 KEYED AUTOMATION	R11 KEYED STEERIING	R9 STAIRWAY 1		R10 STAIRWAY 2
	F18 - 5A KEYED AUTOMATION	F17 - 10A KEYED STEERING	F16 - 5A AUTOMATION		F15 - 5A BREAKER STAIRWAY
E23923_A					

! Fuse Box Behind the Battery On/Off Switch (3)(4)

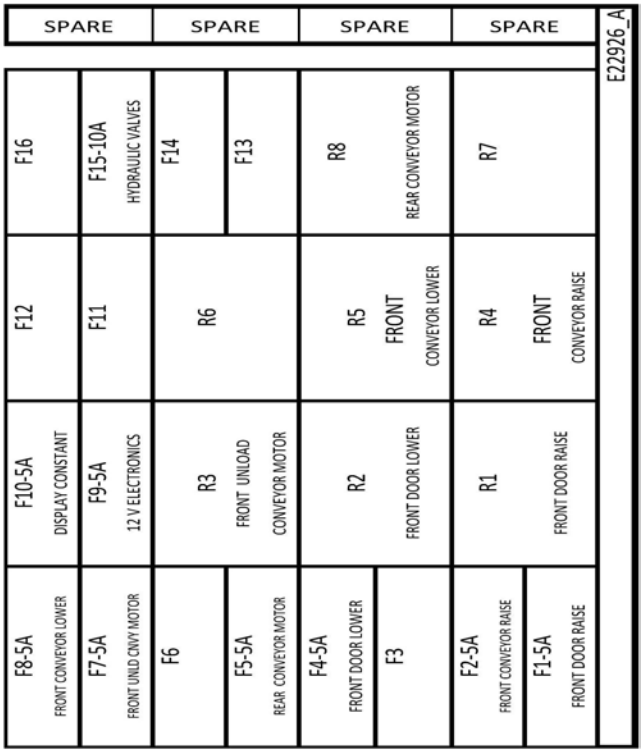
- Note: Refer to the decal on the fuse box for the use and the amperage of the fuses. For reference the fuses and relays are shown below.

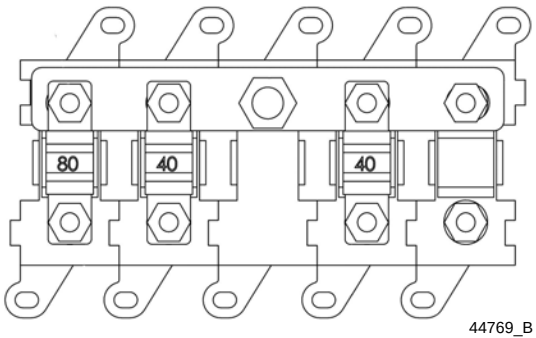
Turn off the battery switch before changing any fuse.



223371C

Fuses Behind Battery Switch





44769_B

Cab	80 A
Control System	40 A
Relay Box	40 A

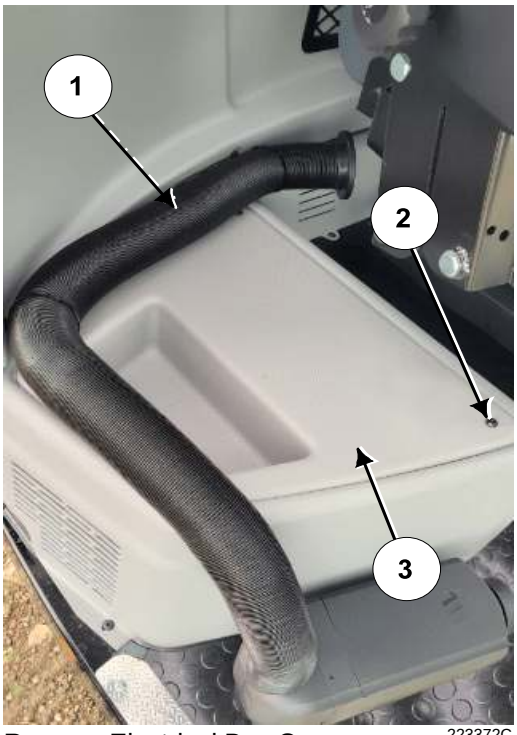
! Fuses in the Cab

Turn off the battery switch before changing any fuse.

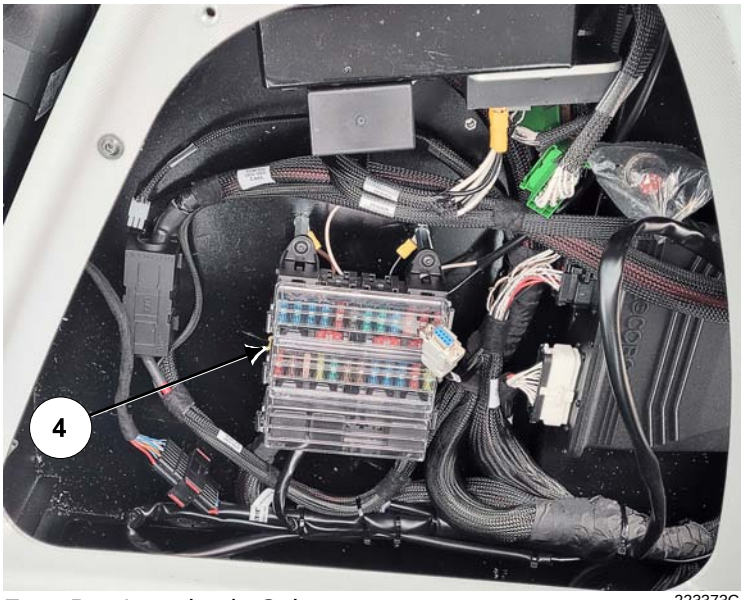
- The fuses for the cab functions are located in the electrical box on the right side of the drivers seat.

- To access the electrical box:
  - Reach over the console holding the monitor display.
  - If the black heater hose (1) is present, move it out of the way to allow removal of the cover panel (3).
  - Remove the 4 fasteners (2) from the cover panel.
  - Remove the cover panel (3).
  - The fuse box (4) is located inside the compartment.

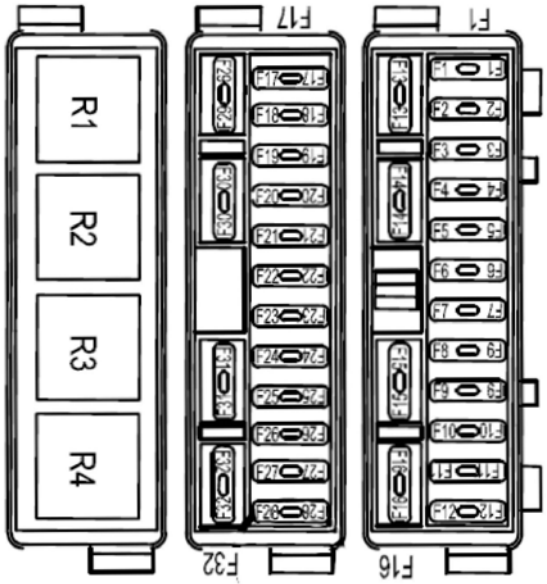
- Note: Refer to the following information for the use and the amperage of the fuses.



Remove Electrical Box Cover 223372C



Fuse Box Location in Cab 223373C



In Cab Fuses

223374

R1 AC COMPRES-SOR	F29 UNUSED	F17	HVAC CONTROLLER	5A	F13 UNUSED	F1	CAB CONTROLLER	15A
		F18	BUTTONS	5A		F2	CAB CONTROLLER	15A
		F19	UNUSED			F3	CAB CONTROLLER	15A
R2 UNUSED	F30 UNUSED	F20	UNUSED		F14 RADIO 10A	F4	CAB CONTROLLER	15A
		F21	BLOWER	30A		F5	RADIO	10A
		F22	UNUSED			F6	INTERIOR LIGHT	7.5A
R3 UNUSED	F31 UNUSED	F23	CAB CONTROLLER	5A	F15 WIPER FRONT 10A	F7	AC COMPRESSOR	5A
		F24	LIGHTER 1	15A		F8	UNUSED	
		F25	LIGHTER 2	15A		F9	UNUSED	
R4 MIRROR HEAT	F32 UNUSED	F26	SEAT	15A	F16 REAR MIRROR MOTOR 10A	F10	UNUSED	
		F27	MIRROR HEAT	10A		F11	WIPER RIGHT	10A
		F28	GLASS HEAT	25A		F12	UNUSED	

Lubrication - Grease

Lubricate all grease fittings with a quality lithium soap compatible E.P. grease meeting the N.L.G.I. #2 specifications and containing no more than 1% molybdenum disulfide.

- At each grease fitting clean off the fitting before attaching the grease gun.

There are 2 different greasing procedures depending if the Auto Greasing option installed:

- Manual greasing points (see below).

- Auto Greasing Option plus some manual greasing points (see page 26).

! Manual Greasing

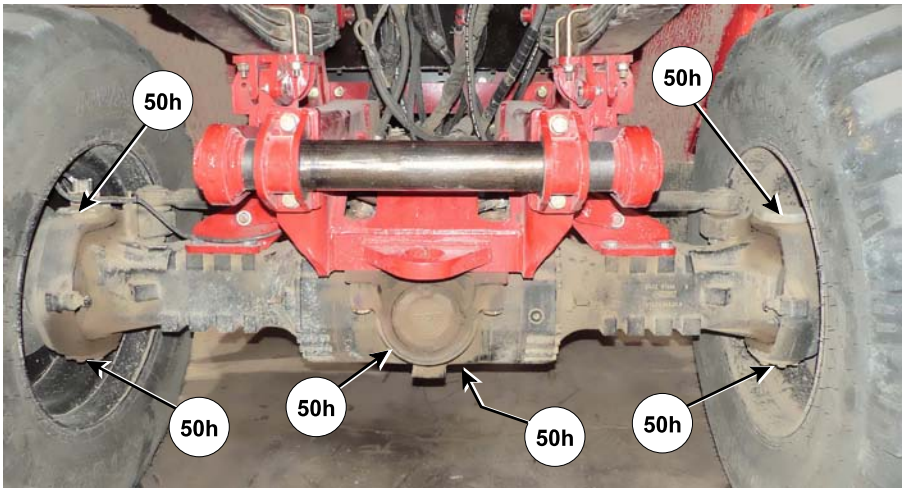
The grease points identified below are for machines that do not have the Automatic Greasing option installed.

Every 50 Hours

! Axle Grease Points - Typical for front and rear axles.

  ! Front and Rear Axle Steering Points
    - 8 points total
      - 2 points on the left pinion
        - Upper and lower points
      - 2 points on the right pinion
        - Upper and lower points

  ! Front and Rear Axle Trunnion
    - 4 points total
      - 1 point on front of axle trunnion
      - 1 point on rear of axle trunnion



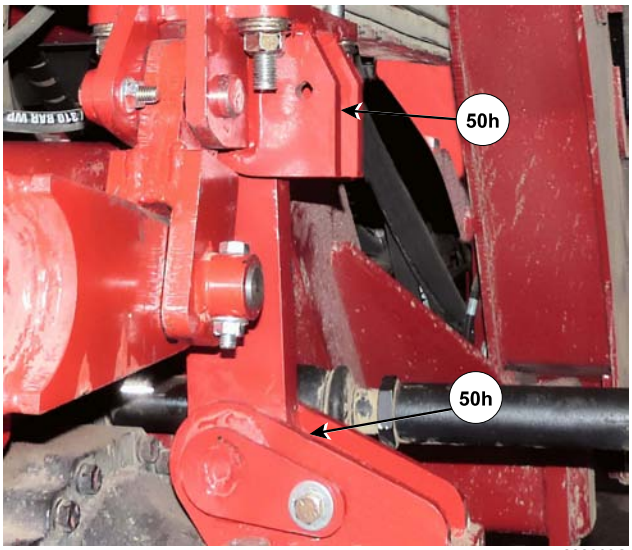
Axle Grease Points - Typical for Front and Rear Axles (Rear Axle Shown) 223368C

2. Suspension Grease Points - Typical for front and rear suspension.

   - 8 points total - Grease front and rear suspension link.

     - 2 points on left suspension link
     - 2 points on right suspension link

   Note: Also inspect the suspension components for wear.



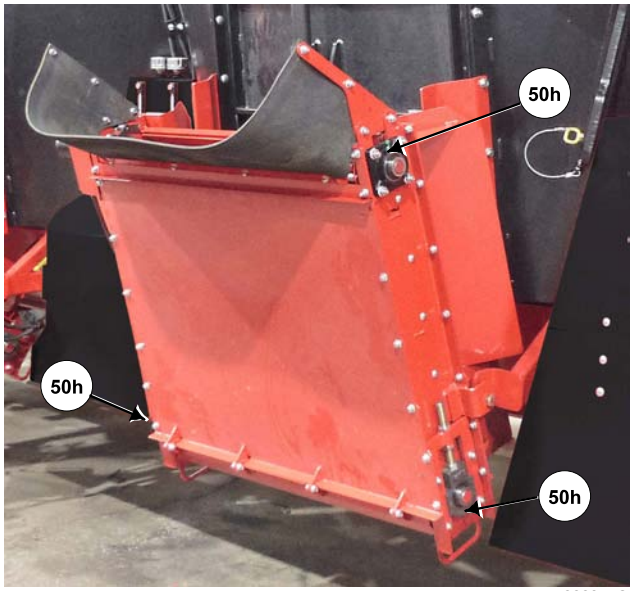
Grease Suspension Links (Right Rear Shown) 223369C

3. Tub Unload Conveyors

   - 4 points on each unload conveyor present.

   ! Front conveyor bearing - 1 point

   ! Rear conveyor bearings - 2 points



Grease Unload Conveyors 223374C

   ! Front motor bearing - 1 point
     - Grease through the hole in the motor cover.

Grease The Unload Conveyor Motor Bearing 223375C

5. Loading Arm Milling Head

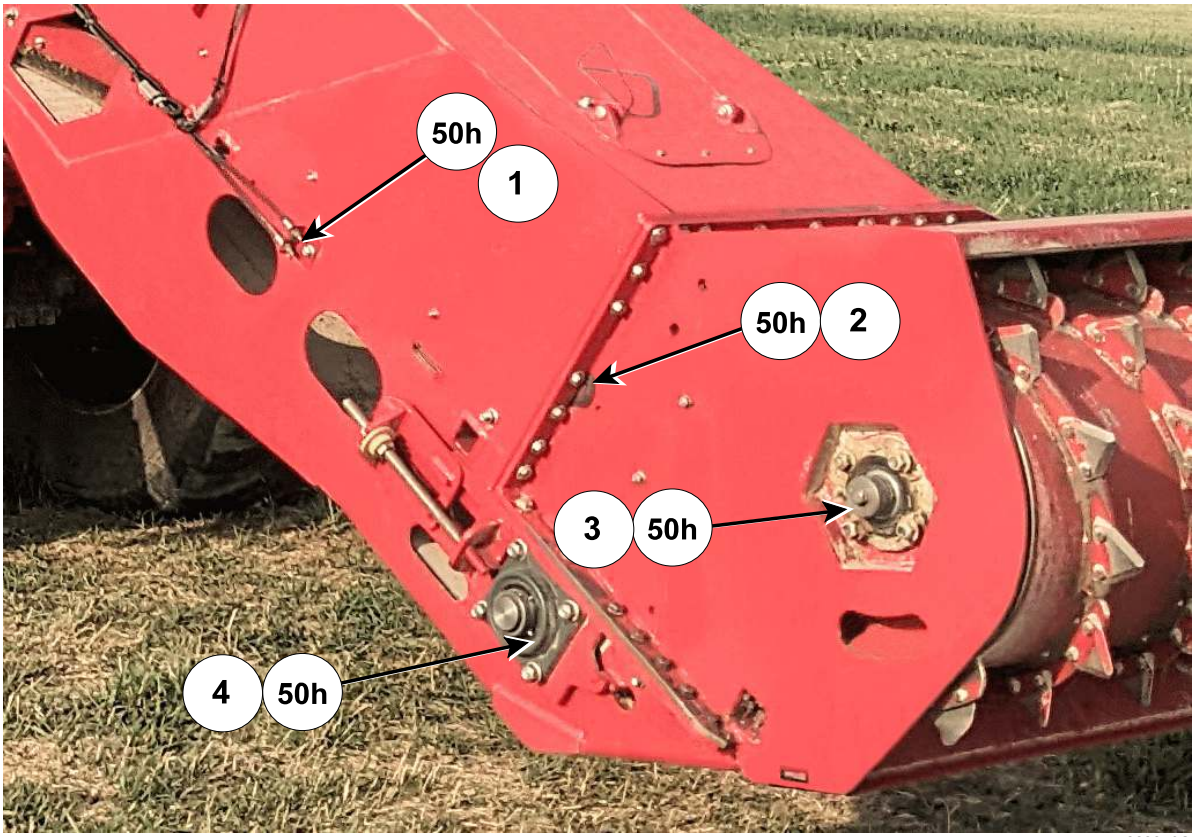
   Right side of loading arm and milling head.

   - (1) The remote grease points send grease to the right and left upper loading conveyor bearings - 2 points.

   - (2) Auger bearing - 1 point.

   - (3) Milling head right bearing - 1 point.

   - (4) Loading conveyor right bearing - 1 point

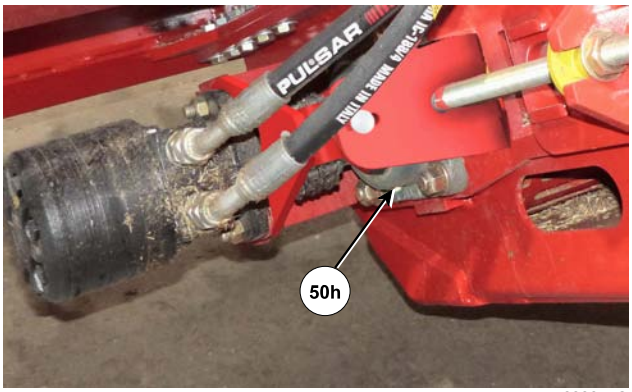


223376C

Grease Points on Right Side of Milling Arm and Head

Left side of loading arm and milling head.

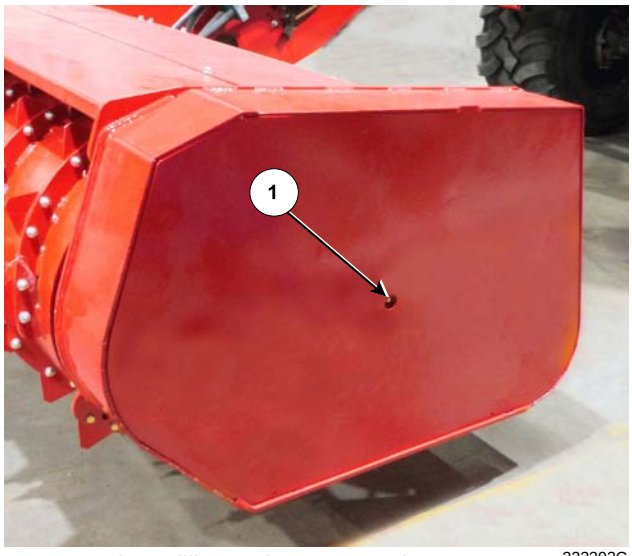
- Conveyor Motor Bearing - 1 point



Loading Arm Left Side Conveyor Motor 223377C

- Milling Head Drive

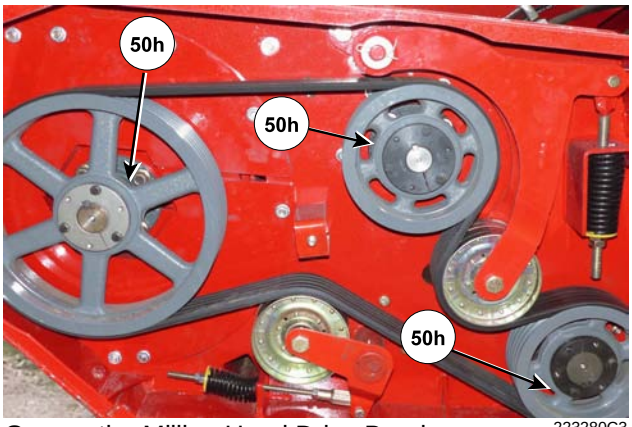
  - Open the milling head cover plate by removing the fastener (1) holding the cover plate.



Remove the Milling Drive Cover Plate 223393C

- Grease 3 Points
  - 1 point on the milling head bearing
  - 1 point on the auger bearing
  - 1 point on the motor sheave bearing

- Replace the milling head cover plate and install the fastener holding the cover plate.



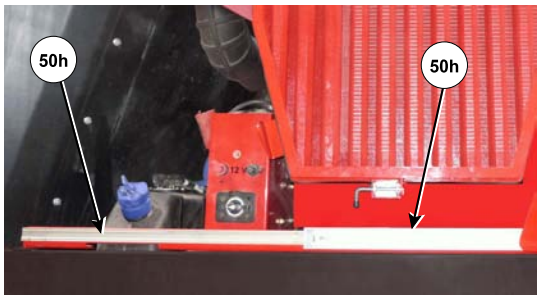
Grease the Milling Head Drive Bearings 223280C3

6. Grease both ends of the arm lift cylinder.

    - 2 points

Grease the Ends of the Arm Lift Cylinder 223382C

7. Brush off both engine cabinet slides and apply a dry lubricant.



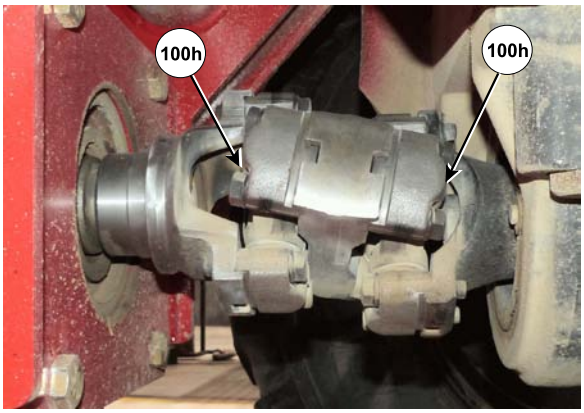
Brush Off and Lubricate with Dry Lubricant

Every 100 Hours

1. Grease the driveline from the motor to the axle.

    - Typical for front and rear axles.

        - 2 points at the front axle
        - 2 points at the rear axle



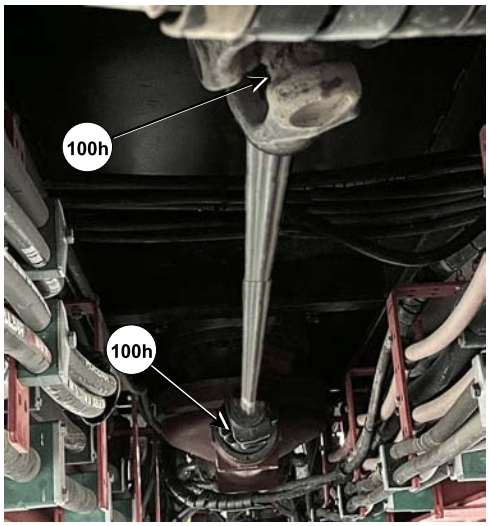
Driveline from Motor to Axle 223379C

2. Mixing Screws Driveline

    Grease 2 points

    - 1 point on the joint at the front screw drivebox.

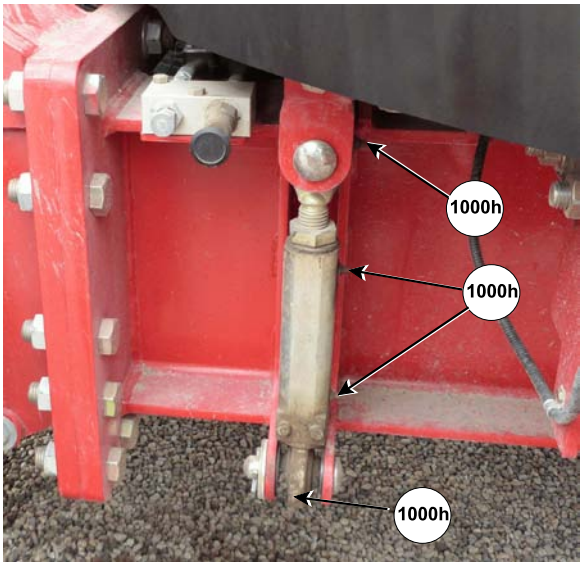
    - 1 point on the joint at the rear screw drivebox.



Grease Driveline Between Screw Driveboxes 224194C

Every 1000 Hours

- Grease the 4 load cells on the machine.
  - 16 points
    - 4 points on each of the 4 load cells assemblies that hold the tub to the frame.



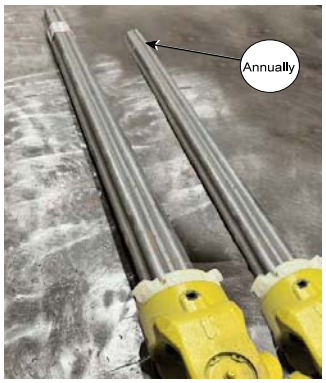
Grease Load Cell Assemblies 223383C

Annually

- Grease the cab door hinges - 2 points

Grease the Cab Door Hinges 224063C

- PTO from Screw Drivebox to Screw Drivebox
  - Disconnect the driveline from the front and rear screw driveboxes.
  - Slide the inner and outer sections of the driveline apart into 2 pieces.
  - Place grease on the center portion of the driveline that slides into the other center portion of the driveline.
  - Reconnect the driveline to the front and rear screw driveboxes.



Grease the Sliding Portion of the Driveline 224131C

Automatic Greasing Option

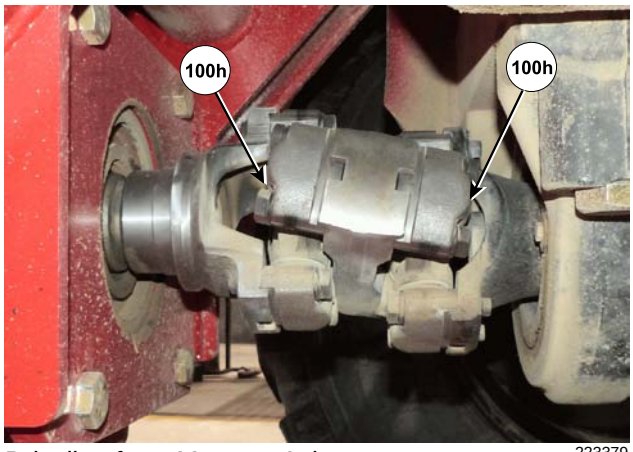
The Automatic Grease option places grease at the following points:

- 4x - Steering Axle Trunions
- 8x - Steering Axle King Pins
- 4x - Suspension Spring Shackles
- 8x - Unload Conveyor Bearings
- 4x - Loading Conveyor Bearings
- 2x - Milling Head Bearings
- 2x- Loading Arm Lift Cylinder Rod Ends

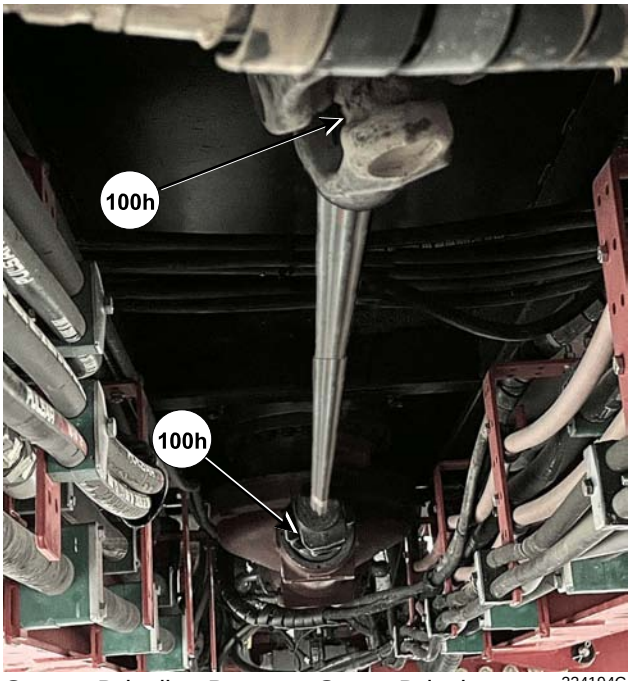
- Refer to page 28 for information on filling the Automatic Grease Option.

The following points will also need to be manually greased and filled:

Brush Off and Lubricate with Dry Lubricant



Driveline from Motor to Axle 223379



Grease Driveline Between Screw Driveboxes 224194C

Every 50 Hours

1. Brush off both engine cabinet slides and apply a dry lubricant.

Every 100 Hours

1. Grease the driveline from the motor to the axle.

   - Typical for front and rear axles.

     - 2 points at the front axle
     - 2 points at the rear axle

2. Mixing Screws Driveline

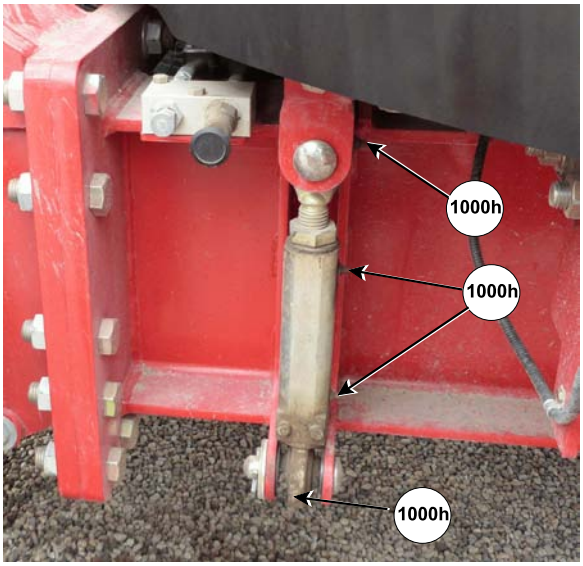
   Grease 2 points

   - 1 point on the joint at the front screw drivebox.

   - 1 point on the joint at the rear screw drivebox.

Every 1000 Hours

- Grease the 4 load cells on the machine.
  - 16 points
  - 4 points on each of the 4 load cells assemblies that hold the tub to the frame.



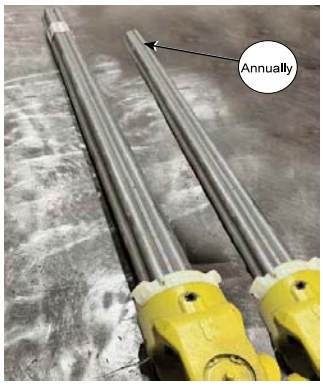
Grease Load Cell Assemblies 223383C

Annually

- Grease the cab door - 2 points

Grease the Cab Door Hinges 224063C

- PTO from Screw Drivebox to Screw Drivebox
  - Disconnect the driveline from the front and rear screw driveboxes.
  - Slide the inner and outer sections of the driveline apart into 2 pieces.
  - Place grease on the center portion of the driveline that slides into the other center portion of the driveline.
  - Reconnect the driveline to the front and rear screw driveboxes.



Grease the Sliding Portion of the Driveline 224131C

Filling the Automatic Greaser

- Check the level of grease in the automatic greaser.

- Ensure that the grease level is above the minimum line (3) indicated on the grease container.

<u>To fill the Automatic Greaser:</u>

- The grease to be used must be an NLGI 0 grease of EP quality and <u>must not contain graphite</u>.

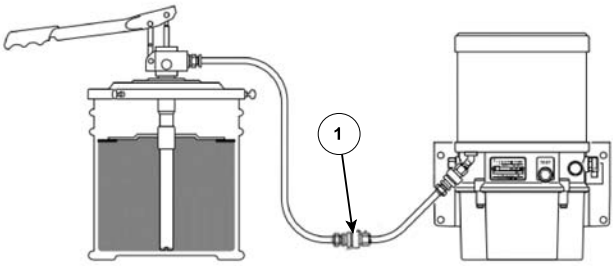
Minimum Fill Line
(Shown Outside of Cover for Clarity) 224019C

1. Connect a pail of NLGI 0 grease that has a pump on it to the remote grease fill connection (1).

   - The remote fill connection (1) is located on the lower cover of the screw oil tanks.

   - Fill the reservoir (2)
     - Do not fill the reservoir more than the maximum level (2 cm below the top of the reservoir).

     - Fill until the follower plate meets its stop.



Fill Greaser with Pail Pump 224018C

Automatic Greaser and Fill Connection 224020-2C

Mixing Screw Drivebox Oil

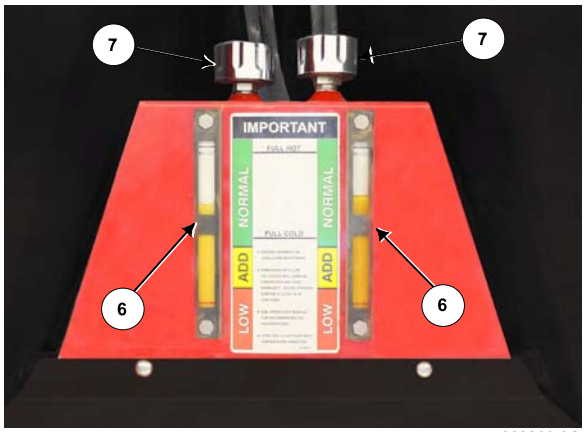
- The oil level and fill location for the mixing screw gear boxes is located on the left side of the tub.

- Check the oil level as shown in the level tubes (6).
  - Compare the level to the decal.
  - Check the oil level when the machine is cold.
  - Check when the machine is on level ground.

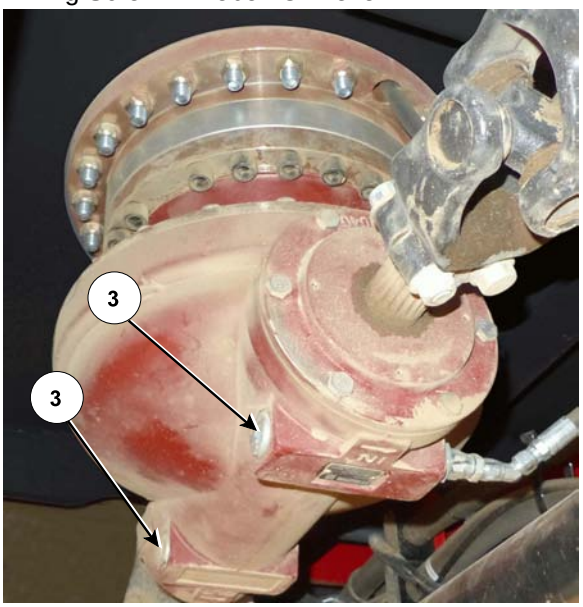
- Fill to each side comparing the oil level in the level tube to the decal.
  - Fill with EP150 synthetic oil.

Note: Pour in oil in small amounts while giving time for the oil to run down the hoses into the gearbox and register in the level tube.

Note: Do not overfill to prevent the breather port of the gearbox from being blocked.



Mixing Screw Drivebox Oil Level 223266-2C



Drain Plugs on Front Screw Drivebox 223384C

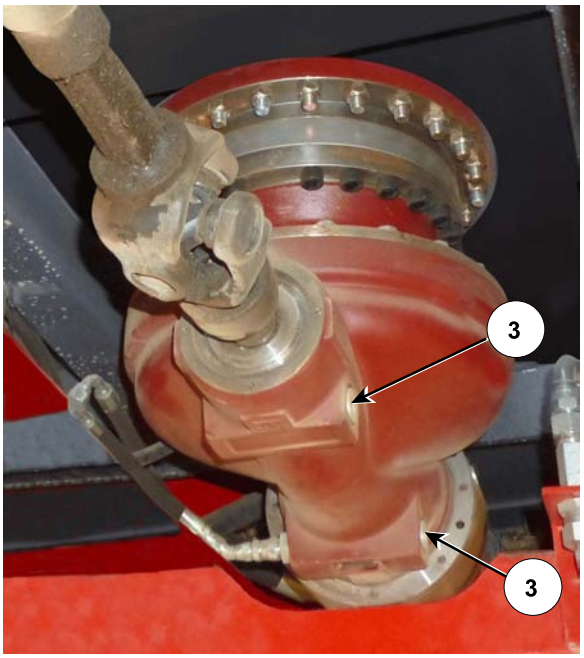
Changing Oil in the Screw Drivebox

1. Change the oil in the front and rear screw driveboxes according to the Maintenance Interval Schedule listed later.

2. Remove the 2 drain plugs (3) on the bottom of the screw drivebox to fully remove all the oil in the drivebox.

   - Catch the oil so it can be disposed of in a proper way.

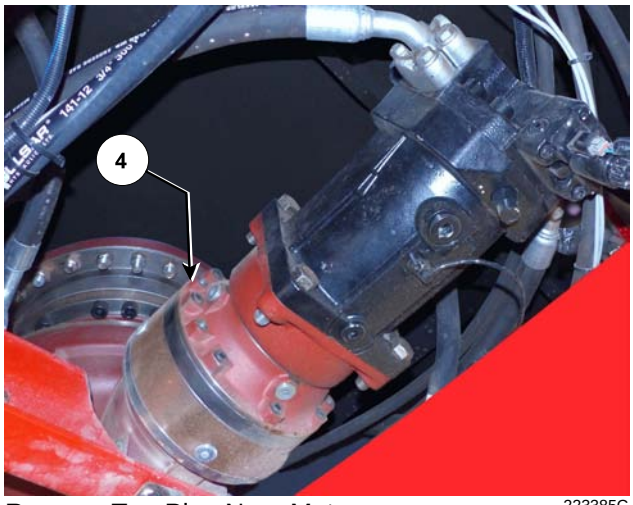
3. Replace the drain plugs.



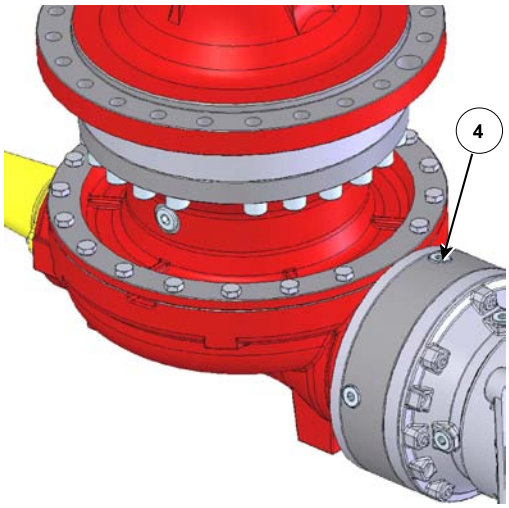
Drain Plugs on Rear Screw Drivebox 223380C

Filling the Rear Gearbox with the Motor (Rear Screw):

1. Remove the top drain plug (4) next to the motor to allow air to escape while being filled.



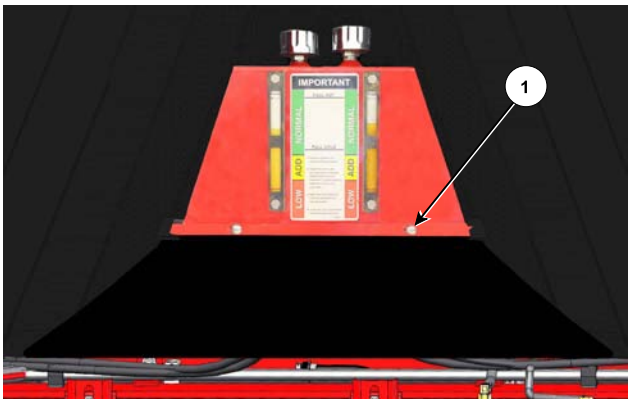
Remove Top Plug Near Motor 223385C



Top Drain Plug Near Motor 37257C

2. Remove the lower panel of the screw gearbox oil reservoir.

   - Remove the fasteners (1) to remove the panel.

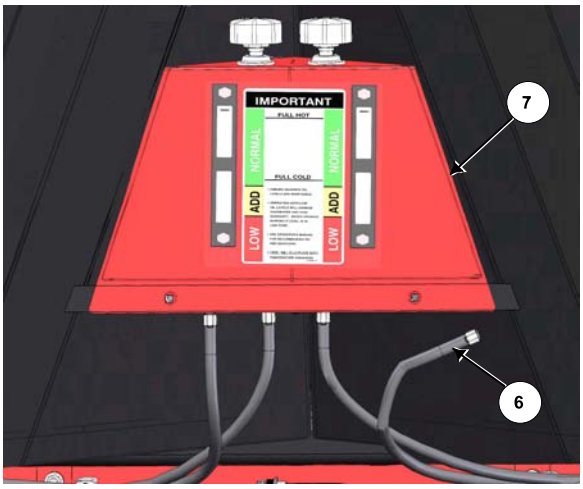


Remove the Lower Panel of Reservoir 223388-2C

3. Remove the gearbox filler hose (6) (outer hose) from the bottom of the rear reservoir (7).

   - The reservoir nearest the rear portion of the mixer tank is for the rear screw oil.

   - Install a plug/cap into the bottom of the reservoir.



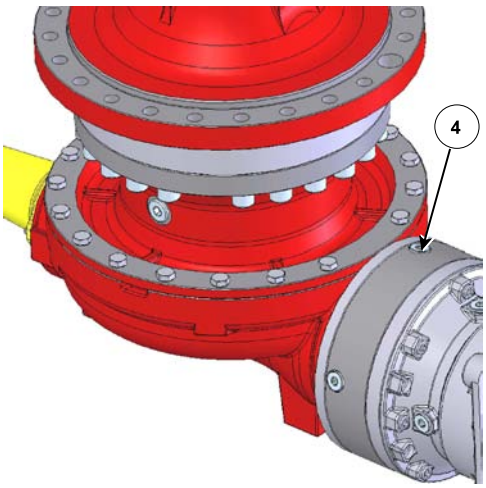
Remove the Outer Hose from the Rear Tank
Install Plug in Bottom of Tank 223389-2C

4. Attach a 5 gallon pail pump (or similar) with adapters to the end of the filling hose (6).

Attach Pail Pump to Filler Hose 220131

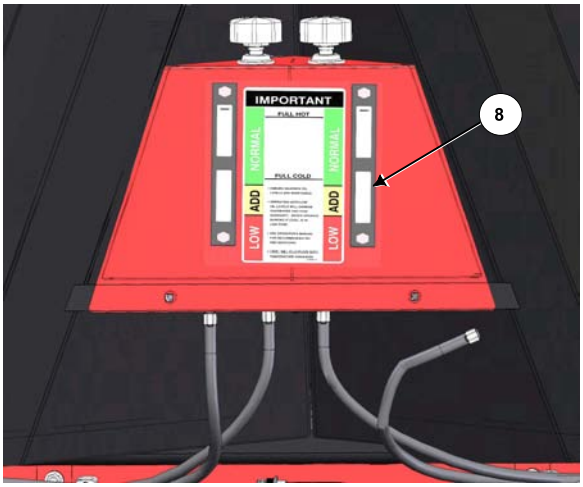
5. Pump EP150 synthetic oil into the gearbox until oil starts to come out of the top plug (4) indicating that air has been removed.

   - Replace the plug (4).



Fill Until Oil Comes Out of Top Plug 37257C

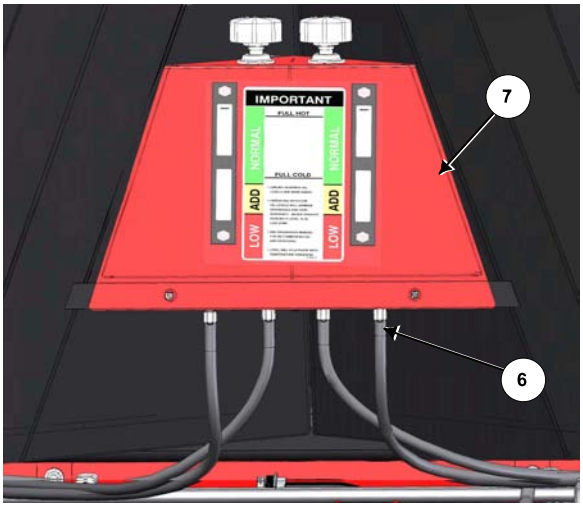
6. Continue filling with the pail pump attached to the filler hose (6) until oil is visible in the level gauge glass (8).



Continue Filling Until Oil in Level Gauge 223389-2C2

7. Remove the plug/cap from the bottom of the rear tank (7) and reinstall the filling line (6) to the bottom of the rear tank..

8. Remove the rear tank fill cap to fill the screw drivebox and tank.
   - Fill the oil level to the normal range as shown on the decal.



Reconnect the Outer Hose to Rear Tank 223386-2C2

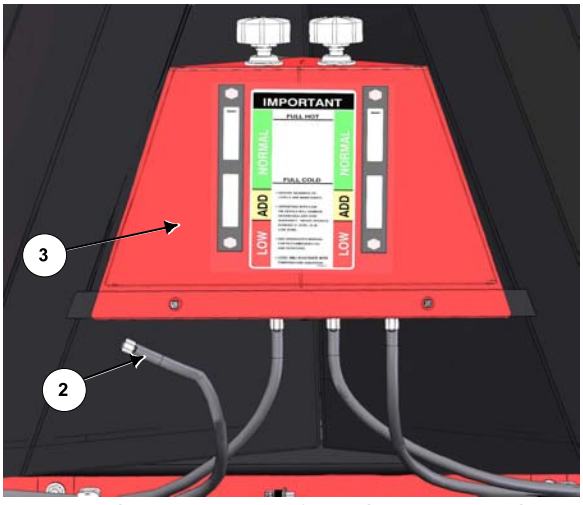
Filling the Front Gearbox (Front Screw):

1. Remove the gearbox filler hose (2) (outer hose) from the bottom of the front reservoir (3).

   - The reservoir nearest the front portion of the mixer tank is for the front screw oil.

   - Install a plug/cap into the bottom of reservoir.

   Note: No plug needs to be removed from the front gearbox for filling.

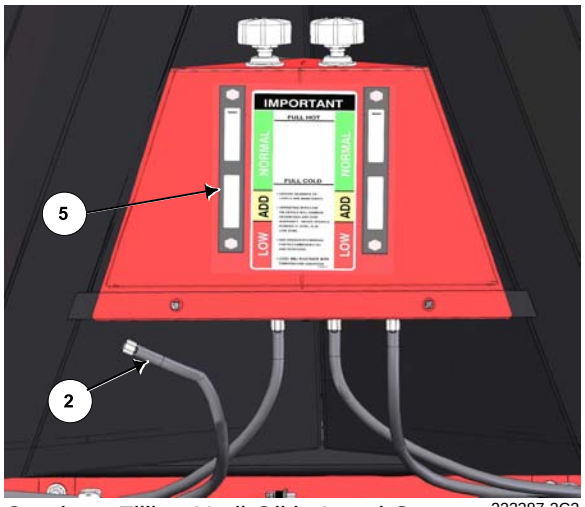


Remove the Outer Hose from the Front Tank
Install Plug in Bottom of Tank 223387-2C

- Attach a 5 gallon pail pump (or similar) with adapters to the end of the filling hose (6).

Attach Pail Pump to Filler Hose 220131

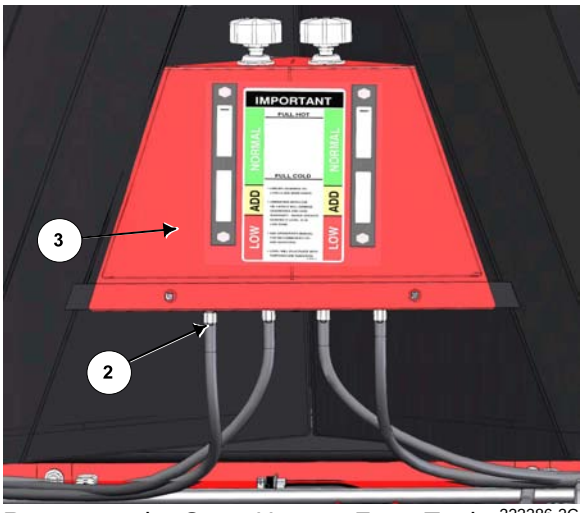
2. Pump EP150 synthetic oil into the gearbox until oil is visible in the level front gauge sight glass (5).



Continue Filling Until Oil in Level Gauge 223387-2C2

3. Remove the plug/cap from the bottom of the front tank (3) and reinstall the filling line (2) to the bottom of the tank.

4. Remove the front tank fill cap to fill the screw gearbox and tank.
   - Fill the level to the normal range as shown on the decal.



Reconnect the Outer Hose to Front Tank 223386-2C

5. Replace the lower tank panel and fasten in place.

Axles

Central Axle Housing

Note: Refer to the Maintenance Interval Schedule listed below for the timing of changing the oil.

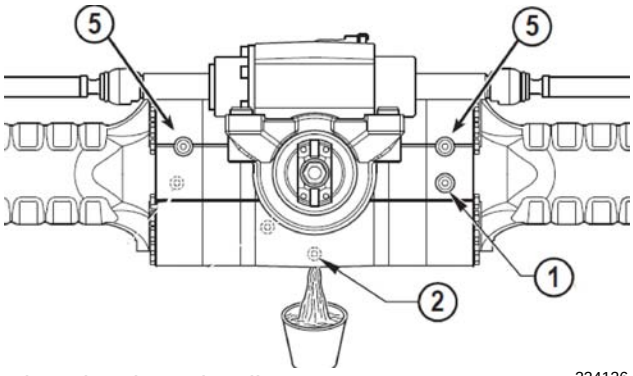
- Remove the oil level plug (1).
- Remove the oil draining plug (2) and drain the oil.
- Carefully clean the oil plug magnet.

Filling the Center Axle with Oil

- Replace the drain plug (2).
  - Tighten to 50 - 60 N·m (37- 44 lbf).
- Fill with oil through the filling plug (1) until the oil is level with the bottom of the plug hole.
  - 75W90 synthetic oil - LS additive oils API GL5.
  - When filling the axle with oil, wait for 15 minutes for the oil to flow through the differential and the brakes into the axle arms.
- Check the oil level and top up if necessary.
- Replace the oil fill plug (1).
  - Tighten to 50 - 60 N·m (37- 44 lbf).

Checking the Brake Disc Wear

- Refer to the Dana Spicer Service Manual for the procedure on checking the brake disc wear.



Changing the Axle Oil 224126

Checking Oil Level at the Wheel Gear Drive

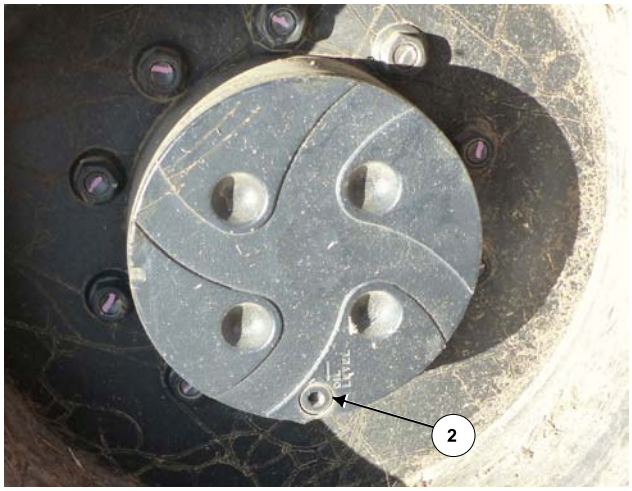
1. Rotate the hub until the arrow on the hub and the oil fill/drain plug (1) is horizontal.
2. Remove the oil fill plug (1).
3. The oil should be level with the bottom of the plug hole.
4. To fill add use75W90 synthetic oil - LS additive oils API GL5 until the oil is level with the bottom of the plug hole.
5. Replace the drain plug.

Check Oil Level with Drain Plug Horizontal 219299C

Changing the Oil in the Gear Wheel Drive

Note: Refer to the Maintenance Interval Schedule for the timing of changing the oil.

1. Rotate the hub so the drain hole (2) is at the bottom.
2. Remove the drain plug and catch the oil.
   - Carefully clean the oil plug magnet.
3. Rotate the hub until the oil fill/drain plug (1) is horizontal.
4. Fill with 75W90 synthetic oil - LS additive oils. API GL5 until the oil is level with the bottom of the plug.
5. Replace the plug (1).



Drain Plug at Bottom for Draining Oil 219300C

Hole Horizontal - Fill with Oil - Replace Plug 219299C

Wheel Nut Torque

Place the wheel nuts with the flange of the nut against the rim.

Remove all oil from the threads to torque tires to 480 ft-lbs (653 Nm).

Note: Do not lubricate the wheel nuts.

Torque the Wheel Nuts 223308

Tires

Tires can steer towards the frame causing death or serious injury.
Tires can begin moving and run over a person resulting in death or serious injury.

- Ensure machine is on level ground.
- Ensure all tires are chocked.

- Check the tires wheels for low pressure, cuts, bubbles.
- Check for damaged rims or missing lug bolts and nuts.
  - Have a qualified tire technician service the tires and wheels.

- Fill the tires with air to these pressures:
  - BKT tires to 70 psi (483 kPa).
  - CEAT tires to 78 psi (538 kPa).

219377

Explosion hazard!
Do not remove, install, or make repairs to a tire on a wheel rim. Take the tire and rim to a tire shop to have a qualified tire mechanic service the tires and rims.
Failure to comply could result in death or serious injury.

To change tires:

For maximum safety, block the other tires to prevent movement of the machine.

- Place a support under the jack when on soft ground.
- Use a jack with a least a 20 ton capacity.
  - Place the jack under the axle in line with the tub suspension.
- Remove the tire.
- Install the new tire.
- Torque the wheel nuts to 480 ft-lbs (653 Nm) with no lubricant.

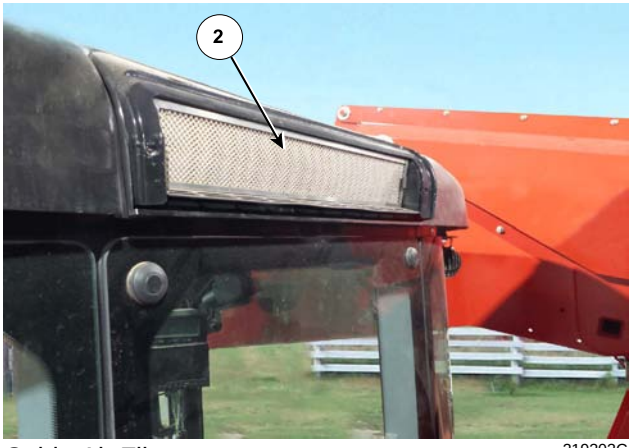
Jack Under Suspension Mount on Axle 223390C

Cabin Air Filter

The cabin air filter is located behind a panel on the top rear side of the cab.

- Remove the 2 twist knobs (1) on the cab top rear panel for access to the cabin air filter.
- Replace the filter (2).
- Replace the cab panel and fasten with the twist handles (1).

Cab Panel for Access to Cabin Air Filter 219302C



Cabin Air Filter 219303C

Windshield Washer Fluid

The windshield washer fluid container (3) is located inside the cab at the rear window near the drivers seat left side.

Windshield Washer Fluid Fill 223393C

Hydraulic System

The hydraulic system consists of a hydraulic oil tank for pumps, motors and hydraulic cylinders.

The hydraulic tank, pumps and filters are accessed by opening the engine cover.

Hydraulic System on Right Side of Machine 219304

The hydraulic system operates under extremely high pressure. Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

Wear proper hand and eye protection when searching for leaks. DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.

Stop the engine, remove key and relieve the pressure before connecting or disconnecting, repairing or adjusting fluid lines.

Accumulators in the hydraulic system contain high pressure oil.

Note: Some hydraulic circuits are pressured a significant amount.
Those circuits retain pressure even after the machine is turned off.
Those circuits need the pressure to be relieved with special methods before servicing.

Contact with high pressure oil may cause death or serious injury.

Hydraulic System Cleanliness

A filter cart is recommended to filter all hydraulic oil before it enters the tank.

Keep all areas clean around the hydraulic filter and filler cap (2).

Immediately repair any fittings, hoses or other components where leaking is observed. Wipe up any leakage.

If the hydraulic system should be disconnected for service, protect the ends of hoses and the ports of components from contamination by using clean lint free towels or clean plastic bags, plugs or caps.

- Before installing any replacement hose, flush the inside of the hose with clean diesel fuel.

Hydraulic Oil Tank

- Maintain the level in the hydraulic oil tank as shown by the oil level indicator (1) mounted on the side of the tank.
  - Compare the level with oil level decal.

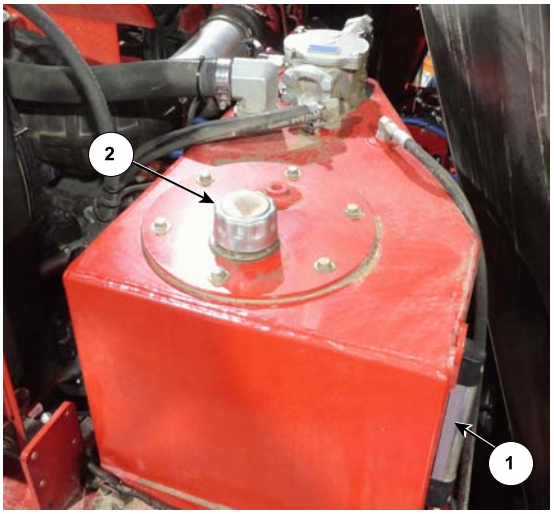
- The Hyd System Info screen on the Display also shows if the hydraulic oil level is okay.

Note: When the oil in the tank drops below a certain level a warning message will appear on the display.
- Determine the cause of the oil leak.
  - Repair the leak before continuing operation as leaking oil presents a fire hazard.

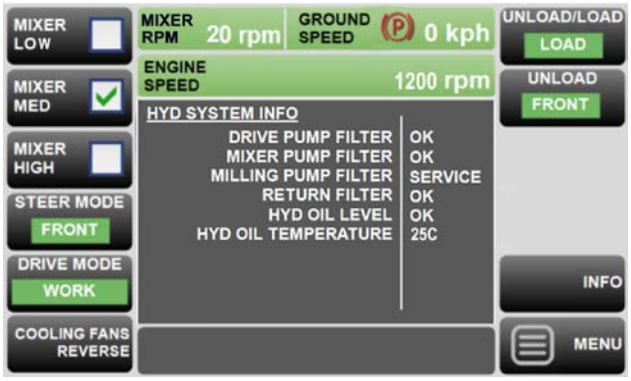
Note: A Warning will appear on the display that the engine will immediately shutdown if the oil in the hydraulic tank drops below the minimum level needed to protect the oil pumps from damage.

- An Engine Shutdown warning will appear on the display.

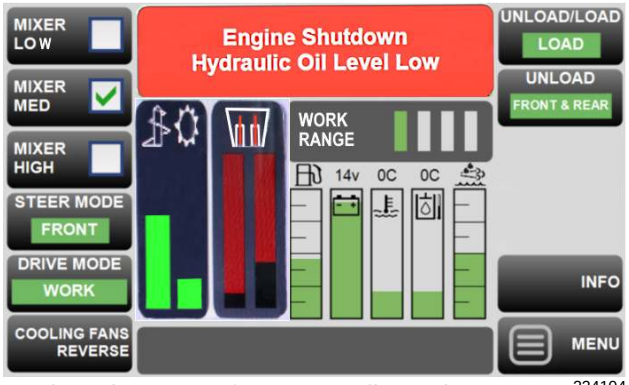
- If the warning comes on while driving, immediately pull over to a safe place because the machine will come to an abrupt stop.



Oil Tank Level and Fill 223395C



Hyd System Info on Display 224099

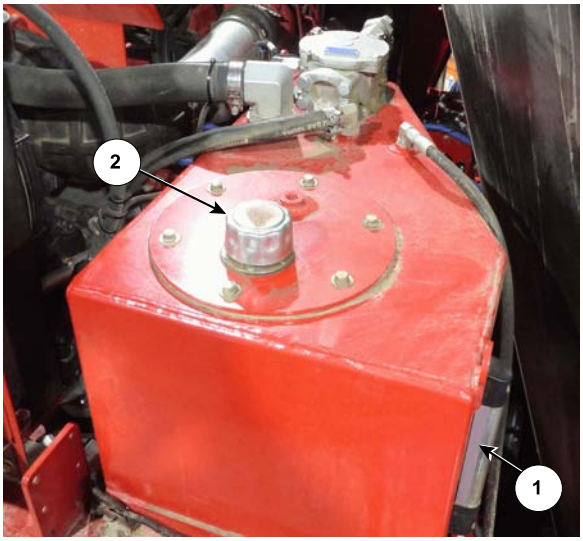


Engine Shut Down from Low Oil Level 224104

- Fill the hydraulic oil tank through the fill cap. (2).

Note: Keep the area around the filler cap and the hydraulic filter clean to prevent oil contamination which will lead to hydraulic component failure.

- Fill with MV-32 type oil. See the Bosch Rexroth Fluid Rating List in Section 9.



Oil Tank Level and Fill 223395C

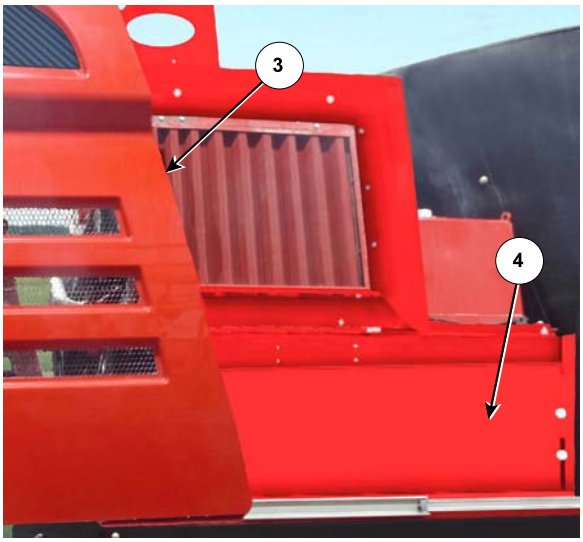
Changing the Hydraulic Tank Oil & Filter

Note: Refer to the Maintenance Interval Schedule for the timing of changing the hydraulic oil.

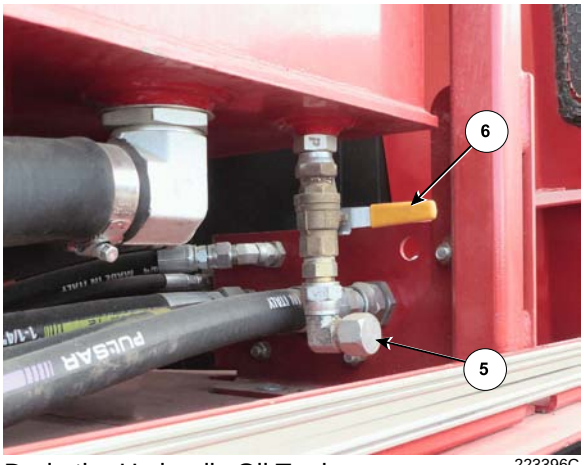
Draining the Tank Oil

- Open the engine cover (3).
- Remove the air baffle (4) from below the tank by removing the fasteners.
- Ensure the handle of the tank drain valve (6) is closed.
- Remove the cap (5) at the bottom of the drain valve.
  - Connect a drain hose to the drain valve to direct the oil into a container.
  - The container will need to hold about 160 liters of oil.
- Open the drain valve (6).

After the tank is drained:
- Close the tank valve (6).
- Remove the drain hose.
- Replace the valve cap (5).



Open the Engine Cover, Remove Baffle Under Oil Tank 223397C

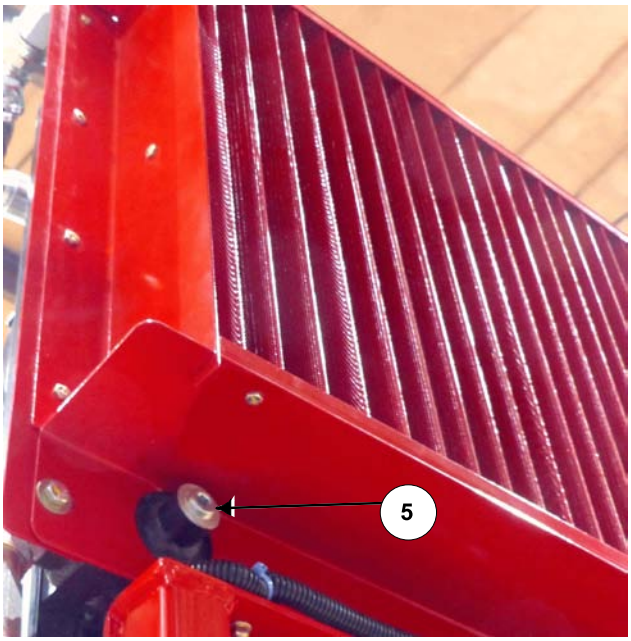


Drain the Hydraulic Oil Tank 223396C

Draining the Oil Cooler

- Remove the drain plug (5) at the bottom of the oil cooler.
  - Collect the oil into a container.
    - The container will need to hold about 27 liters of oil.

- After the oil cooler is drained:
  - Replace the drain plug (5) at the bottom of the oil cooler.



Drain the Oil Cooler 219289C

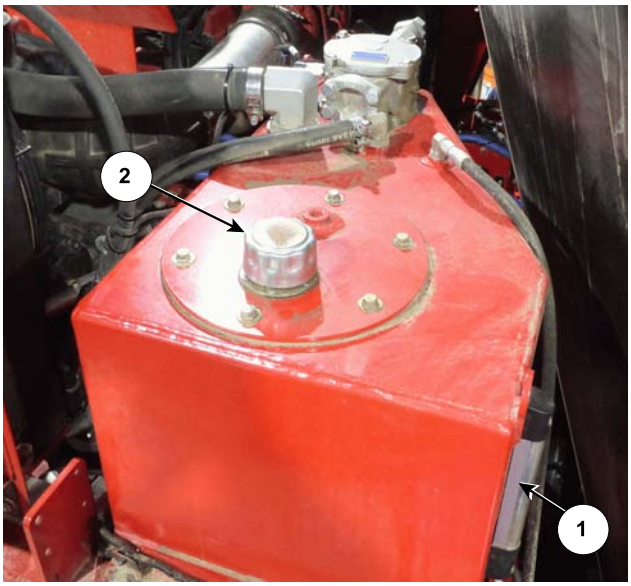
Filling the Oil Tank

Note: Keep the area around the filler cap clean to prevent oil contamination which will lead to hydraulic component failure.

- Fill the tank with about 160 liters of MV-32 type oil through the oil filler cap (2).
  See the Bosch Rexroth Fluid Rating List in Section 9.

- Run the engine so that the pumps will fill the oil cooler with oil.

- Add more oil to the oil tank as needed to fill the tank according to the decal and the sight glass (1).
  - This level allows some room for expansion of the oil as it heats up during use.



Oil Tank Level and Fill 223395C

Changing the Hydraulic Oil Tank Return Filter

By pressing the Info button on the display and turning the rotary dial the Hydraulic System Info will be displayed.

The status of the tank return oil filter is shown and if there is service needed.

- Change the filter when indicated.
- Change the filter each time the hydraulic oil in the oil tank is changed.

To Change the Oil Tank Return Filter

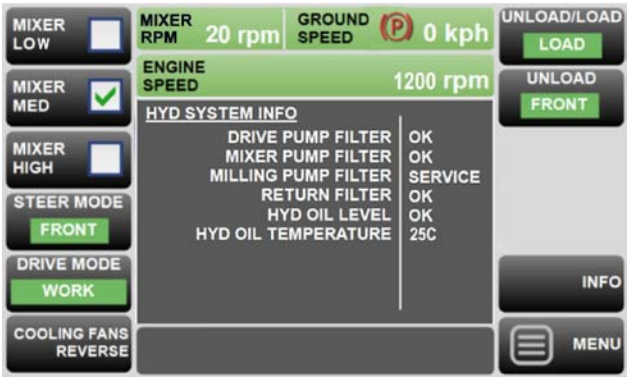
- Remove the 4 fasteners (1) from the filter cover.

- Remove the filter cover (2).

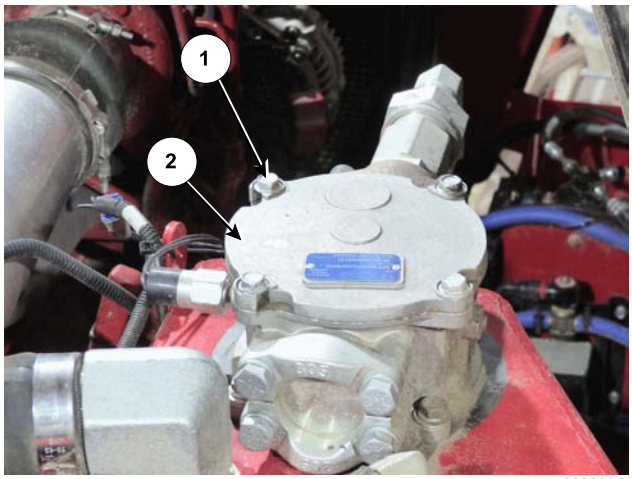
- Remove the upper O-ring seal under the cap.
  - The O-ring seal can be re-used.
    - If the upper O-ring seal has deteriorated, replace with a new part.

- Remove the filter.
  - Examine the filter surface for dirt residues and larger particles which may indicate damage to components.

- If the lower O-ring came out with the filter, remove the O-ring to be re-used.
  - If the lower O-ring seal has deteriorated, replace with a new part.



Hyd System Info on Display 224099



Replace the Oil Tank Filter 223399C


Oil Tank Filter 223398

- Install the new oil filter.

    - Use the filter type as specified in the Section 9 "Specifications".

    - Place oil on the lower O-ring.
    - Place the lower o-ring onto the filter.
    - Line up the filter to seat in the housing.
    - Place oil on the upper O-ring seal.
    - Place the upper O-ring onto the cap.
    - Install the fasteners.
        - Torque to 26 ft-lb (35 NM).

Oil Tank Filter 223398

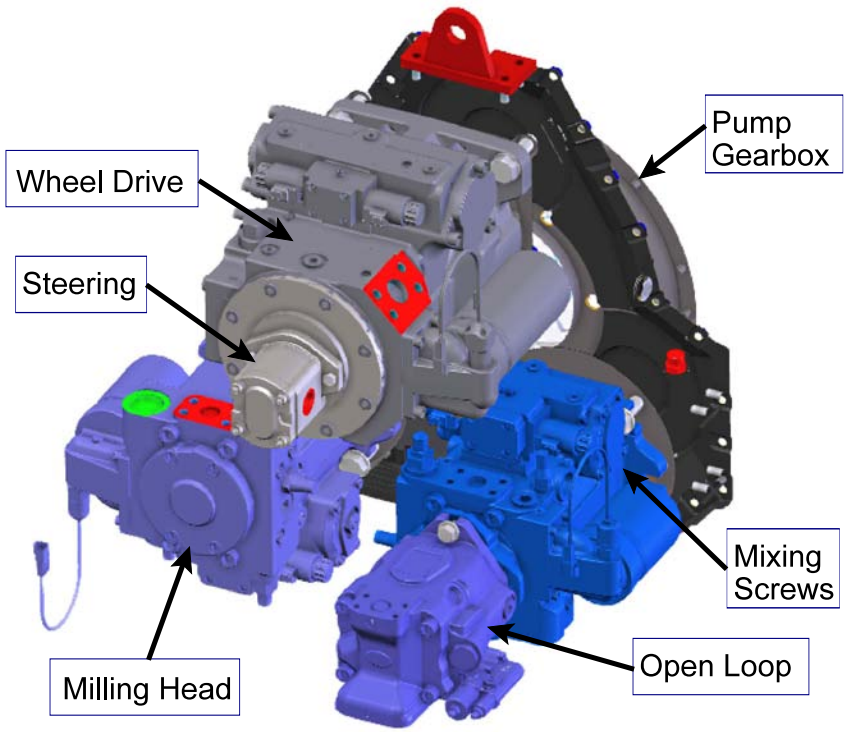
Hydraulic Pumps

- There are 5 hydraulic pumps driven through the pump gearbox located at the rear of the engine.

- The wheel drive pump, mixing screw pump and the milling head pumps are directly mounted to the gearbox.

- The steering pump is connected to the wheel drive pump.

- The open loop pump is connected to the mixing screws pump.

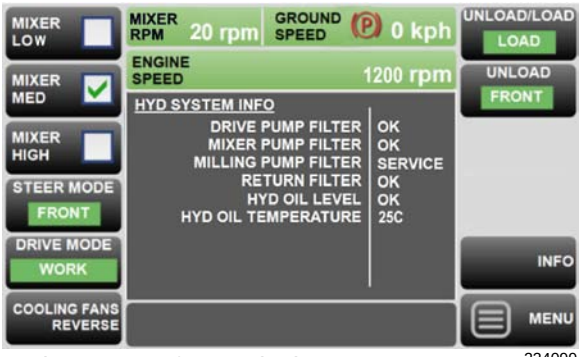


Hydraulic Pumps 223394C

Hydraulic Pumps Oil Filters

By pressing the Info button on the display and turning the rotary dial, a screen showing Hydraulic System Info will be displayed. The status of the hydraulic system pump oil filters is shown and if there is service needed.

Replace the filters when the oil in the oil tank is replaced.

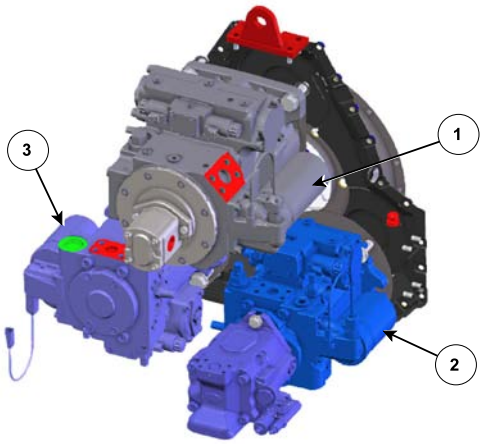


Hyd System Info on Display 224099

Changing the Pump Filters

- There are 3 pump oil filters located on the pumps.

  1. Wheel drive pump filter (1).
  2. Mixing screws pump filter (2).
  3. Milling head pump filter (3).



Pump Filters 223394C2

! Wheel drive pump oil filter. (1)

- This is a cartridge type filter.

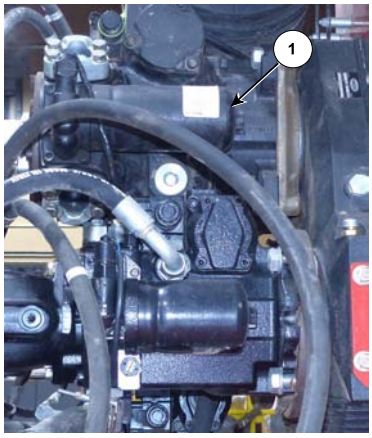
Note: A small amount of oil may leak out as the filter is being changed. Catch the oil for disposal.

- Remove the old filter (1) from the housing and discard.

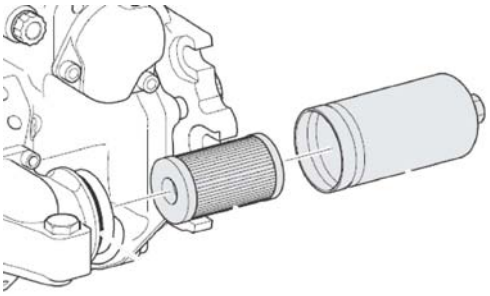
- Place some oil on the filter o-ring.

- Place the filter into the housing.

- Screw the housing (1) onto the pump.
  - Use the filter type as specified in the Section 9.
  - Tighten in place.



Wheel Drive Pump Filter 223400C


Cartridge Type Filter 224275

! Mixing screws pump oil filter. (2)
- The mixing screw filter is accessed by reaching up through the opening in the machine frame near the rear right wheel.

- This is a cartridge type filter.

Note: A small amount of oil may leak out as the filter is being changed. Catch the oil for disposal.

- Remove the old filter (2) from the housing and discard.

- Place some oil on the filter o-ring.

- Place the filter into the housing.

- Screw the housing (2) onto the pump.
  - Use the filter type as specified in the Section 9.
  - Tighten in place.

! Milling head pump filter. (3)

- This is a cartridge type filter.

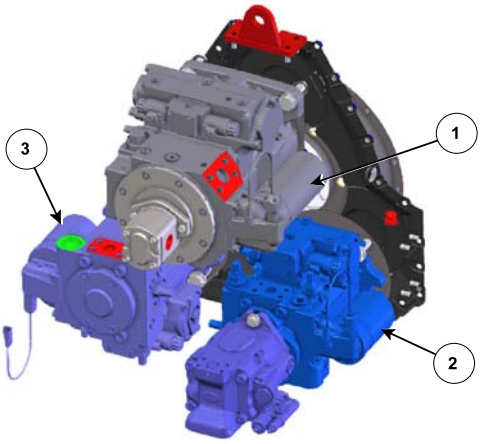
Note: A small amount of oil may leak out as the filter is being changed. Catch the oil for disposal.

- Remove the old filter (3) from the housing and discard.

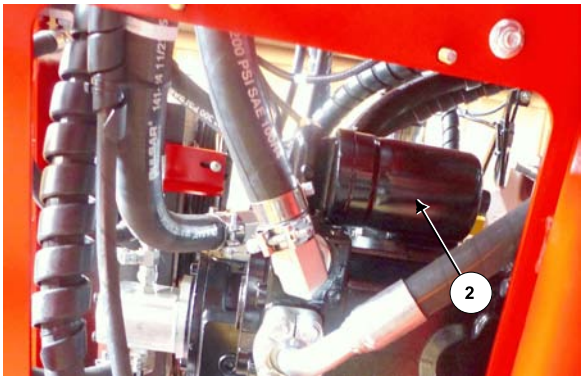
- Place some oil on the filter o-ring.

- Place the filter into the housing.

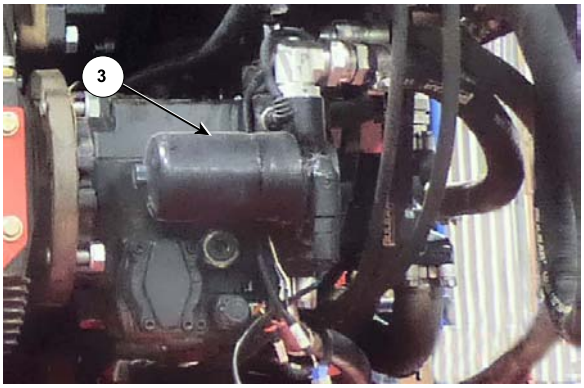
- Screw the housing (3) onto the pump.
  - Use the filter type as specified in the Section 9.
  - Tighten in place.



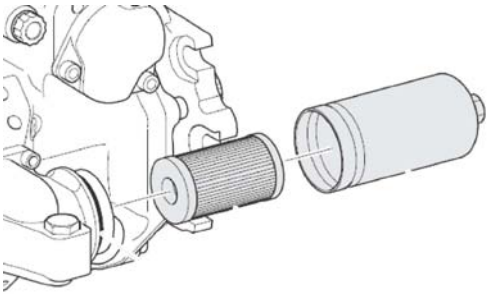
Pump Filters 223394C2



Mixing Screws Pump Filter - Access from Below the Frame 220121C



Milling Head Pump Filter 223401C



Cartridge Type Filter 224275

! Other pumps
- The steering pump and the open loop pump for the braking and auxiliary functions use the return filter mounted on the main oil tank.
- See above for information on changing the oil tank return oil filter.
- Refer to the Specifications Section 9 for replacement details.

Gearbox for the Hydraulic Pumps

- Check the oil level of the gearbox by using the dipstick (1) located on the end of the oil breather.

Note: Do not over fill with oil as this will result in overheating and possible failure of the pump drive gearbox.

<u>To change the pump drive gearbox oil:</u>

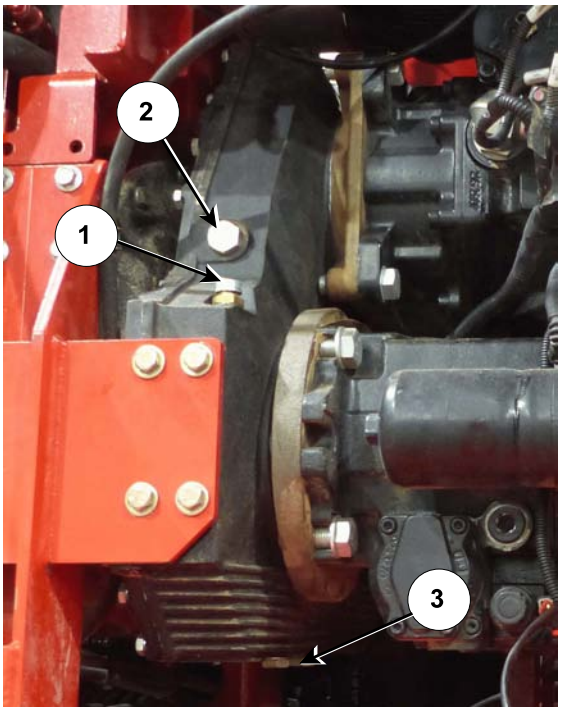
Note: Refer to the Maintenance Interval Schedule for the timing of changing the hydraulic oil.

- Change the oil when the gearbox is warm.

- Drain the oil by removing the drain plug (3) located at the bottom of the gearbox.
  - Reach up through the frame opening to access the drain plug.
  - Catch the oil to be disposed in a safe manner.
  - Replace the drain plug.
    - Torque to 50 ftlbs.

- Remove the plug above the breather port (2) to fill the gearbox with oil.

- Fill with approximately 4.0 litres (1.06 US gallons) of EP150 synthetic oil.
  - Check the level using the dipstick (1).



Gearbox for Hydraulic Pumps 223402C

Visually Inspect Hydraulic Hoses/Fittings

Shut down the machine and replace the hydraulic hose assembly if any of the following conditions exist:

- Fitting slippage on hose.
- Damaged, cracked, cut or abraded cover (any reinforcement exposed).
- Hard, stiff, heat cracked or charred hose.
- Cracked, damaged or badly corroded fittings.
- Leaks at fitting or in hose.
- Kinked, crushed, flattened or twisted hose.
- Blistered, soft, degraded or loose cover.

Note: Some hydraulic circuits are pressured to very high pressures by accumulators.

Accumulators in the hydraulic system contain high pressure oil.

Those circuits retain pressure even after the machine is turned off.
They need the pressure to be relieved with special methods before servicing.

Contact with high pressure oil may cause death or serious injury.

Visually Inspect Hydraulic Cylinders

Shut down the machine and visually inspect all hydraulic cylinders, looking for leaks and/or other damage.

- If hydraulic cylinder damage is found, make all necessary repairs or replace before operating the machine.

Visually Inspect the Hydraulic Pumps and Motors

Shut down the machine and visually inspect all hydraulic pumps and motors, looking for leaks and/or other damage.

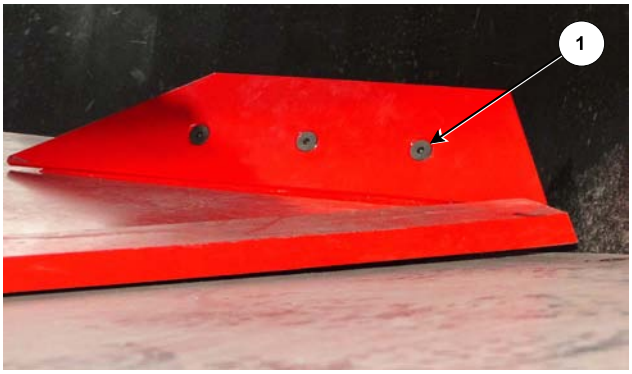
- If hydraulic pump or motor damage is found, make all necessary repairs or replace before operating the machine.

Adjust The Kicker Plate on the Screw Leading Edge

As the machine mixes material, the kicker plate edge will wear as it lifts material onto the screw.

- For proper mixing the kicker plate should be set to a distance of about 1/8" distance to the tub wall at the closest point (this distance will vary as the screw makes its full rotation).

- To adjust the kicker plate:
  - Loosen the fasteners (1) and slide the kicker plate ~1/8" distance to the tub wall at the closest point.
  - Tighten the fasteners (1) to hold the kicker plate.



Adjust Kicker Plate to the Edge of the Screw 223415C

Adjust the Screw Sweeper

If the screw sweeper (2) is contacting the tub floor, add shims between the sweeper and screw mount (3) to move the sweeper up for a small clearance from the tub floor.

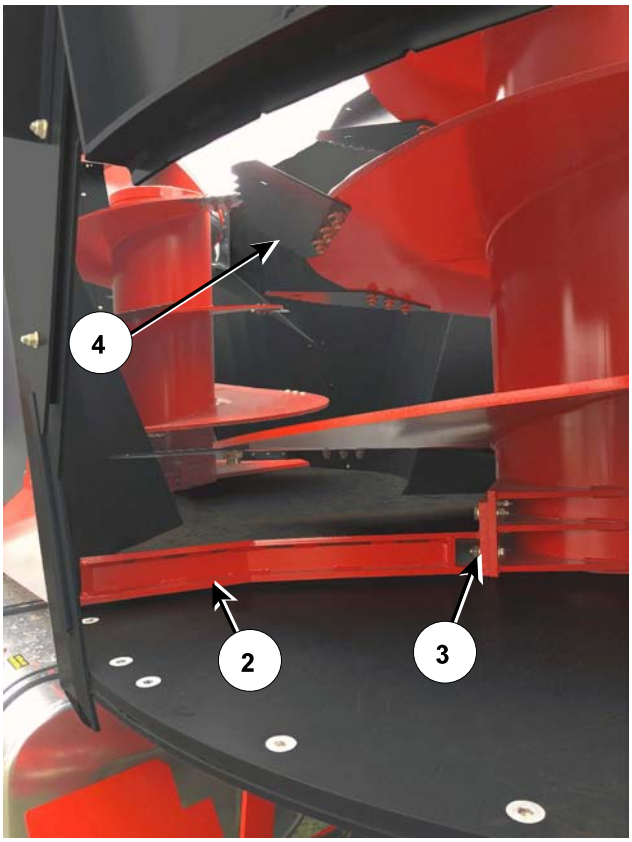
Magnet on the Sweeper (Optional)

- Remove any debris on the magnet.
- Check that the fasteners are tight.

Knives on the Screws

Knives (4) are installed on the screws. The knives nearer to the base of the screw are subject to the most wear.

- To help with uniform wear, exchange the lower knives with the upper knives.
- Replace the knives when they are worn or are no longer cutting material.



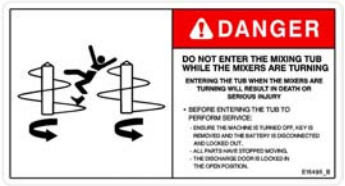
Screw Sweeper Clearance
Change or Replace the Knives 224157C

Do Not Enter the Tub While the Mixers Are Turning.

Entering the tub when the mixers are turning will result in death or serious injury.

Do not lean over the mixing tub while the screws are turning to avoid the danger of falling into tub.

Do not contact the rotating screws Never attempt to remove debris while the screws are rotating.



Milling Head Gearbox

<u>To Change the Milling Head Gearbox Oil:</u>

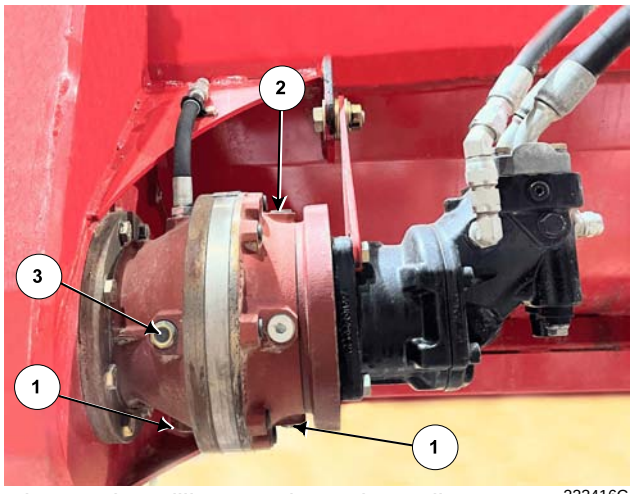
1. Remove the oil fill plug (2) from the top of the gearbox.

2. Remove the oil drain plugs (1) at the bottom of the gearbox.
   - Catch the oil to be properly disposed of.

3. Replace the drain plugs (1).

4. Fill the gearbox with approximately 900 ml of Synduro SHB 220 Synthetic oil
   - Check the oil level through the sight glass (3) on the side of the gearbox.

5. Replace the oil fill plug (2) at the top.



Change the Milling Head Gearbox Oil 223416C

Milling Head and Conveyor

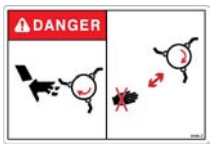
<u>To change the milling head teeth:</u>

Contact with moving milling teeth and auger will cause serious injury or death.
Keep hands out of the cutting area of the loading arm when the drum is rotating.

1. Raise the milling head to about 3 feet off the ground.

2. Turn off the battery switch and lock it to prevent accidental starting of the machine.

3. Replace the milling head teeth if they are worn or damaged.



Turn Off Battery Switch & Lock 219309


Change the Milling Head Teeth 223279

To Adjust the Milling Head Drive Belt Tension

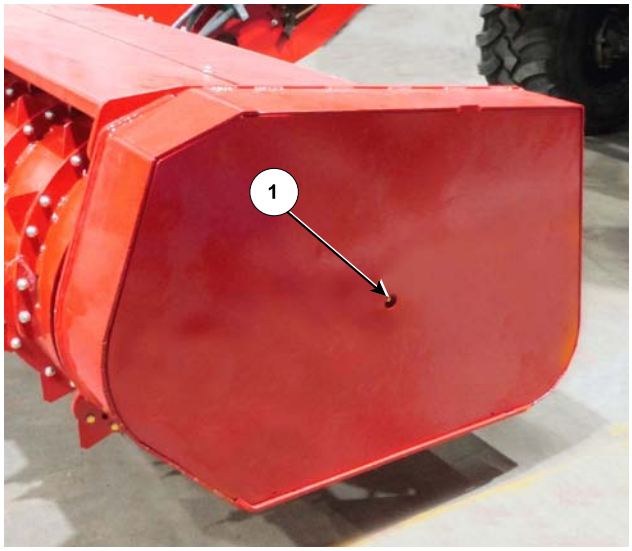
Contact with the moving belt or sheaves may cause serious injury or death.
Keep away from moving parts.

- Remove the fastener (1) from the milling head guard door.

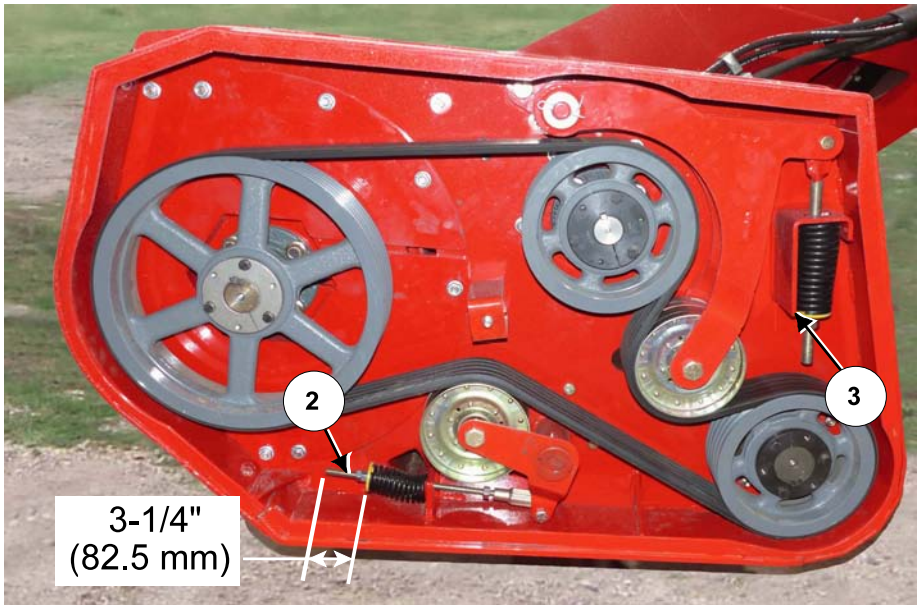
- Remove the guard door.

- Adjust the lower tensioner first (2):
  - Loosen the jam nut.
  - Ensure the threaded rod is fully seated in the clevis.
  - Adjust the tension nut so the length of the threaded rod (2) is 3-1/4" from the end of the rod to the spring retainer.
  - Tighten the jam nut.

- Adjust the upper tensioner (3):
  - Loosen the jam nut and adjust the tension nut so that the washer at the bottom of the spring (3) is flush with the bottom of the bracket.
  - Tighten the jam nut.



Remove Guard Door Fastener and Door 223292C



Adjust the Belt Tension 223280C

To Change the Milling Head Drive Belt

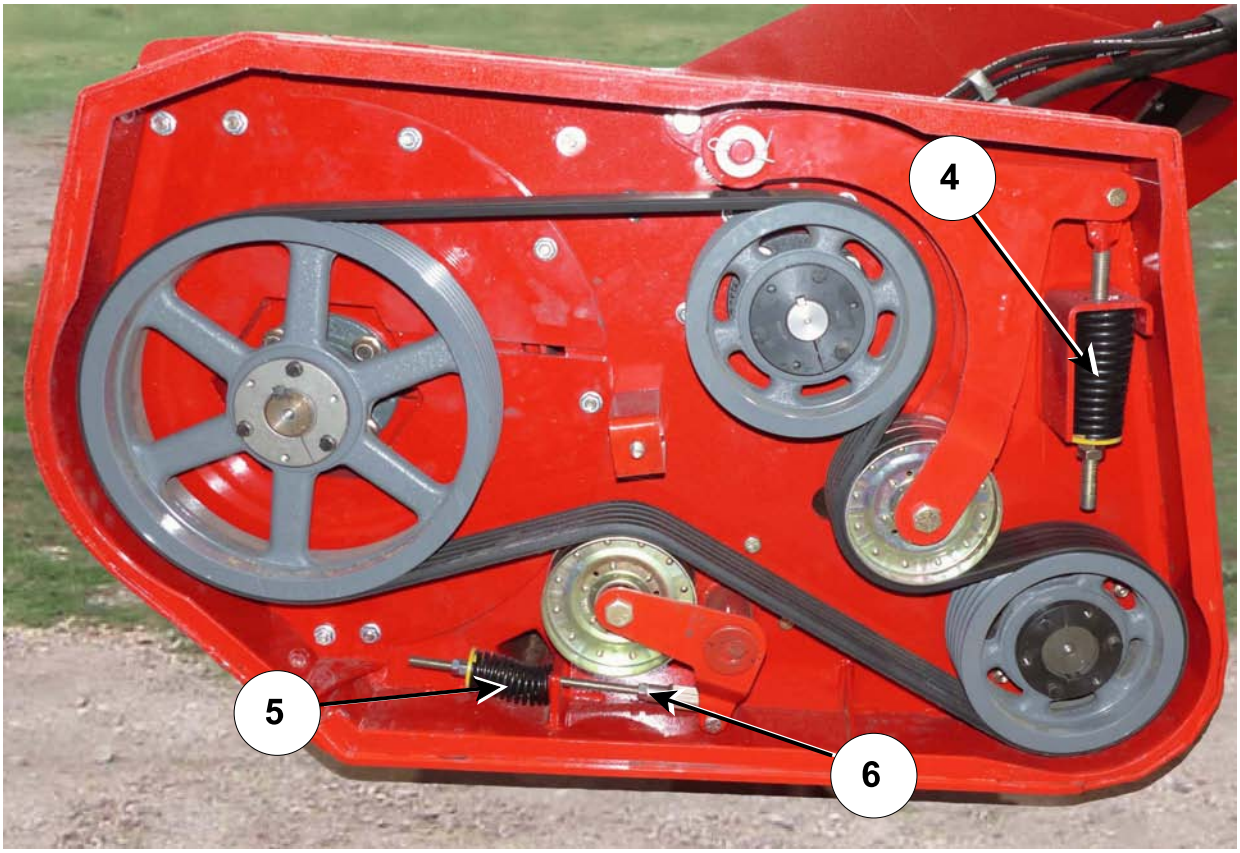
1. Loosen off the tension from both the upper (4) and lower (5) springs.

   - Ensure the threaded rod of the lower spring tensioner (5) remains threaded tightly into the clevis (6).

2. Remove the old drive belt.

3. Route the new drive belt around the sheaves and positioned around the tensioners as shown in the picture.

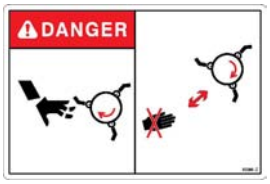
4. Tighten the drive belt by following the instructions "To Adjust the Milling Head Drive Belt Tension" given above.



Replace the Milling Head Drive Belt Around the Sheaves and Tensioners 223280C2

Tightness and Tracking of the Loading Conveyor.

Contact with moving milling teeth and auger will cause serious injury or death.
Keep hands out of the cutting area of the loading arm when the drum is rotating.
Keep body and clothing away from moving parts to prevent serious injury or death.



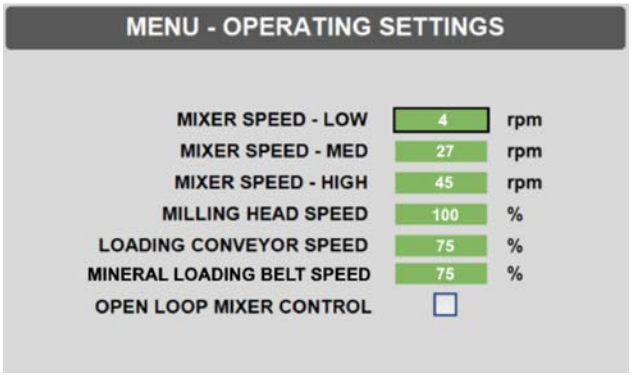
Note See Section 4 "Preparing to Use the AccuMix AMX1000s for checking the condition of the loading arm conveyor belt.

1. Before starting to adjust belt tightness or tracking:

   ! Change the speed of the milling head to 0 (zero) % so that it does not rotate.
   This is a safety step to prevent any movement of the milling head while working in the area.

   - Select Menu and Operating Settings.
   - Select Milling Head Speed.
   - Use the selector knob to set the speed to 0 rpm.

   ! Change the speed of the loading conveyor.
   - On the display in the cab adjust the loading conveyor speed to 10 %.
   - At a later step the conveyor will need to move to adjust the tracking on the rollers.



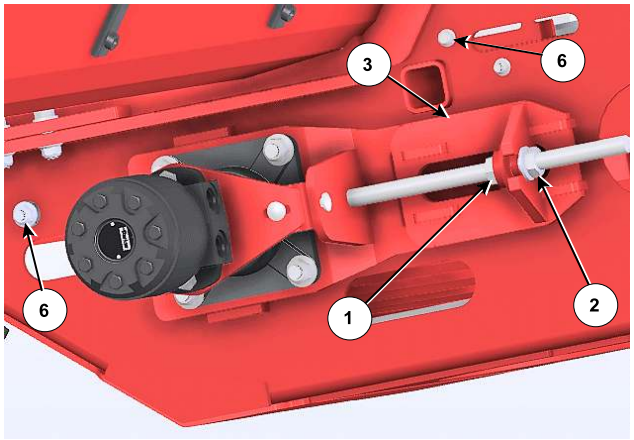
Operating Settings 224107

2. Check the tightness of the conveyor over the rollers.

   On the lower motor side of the conveyor:
   - The tightness of the conveyor will need to be adjusted if there is slipping of the conveyor or the conveyor does not move when the motor is engaged.

   - Loosen the nuts (6) that hold the debris guard.
   - Loosen the upper nut (2) of the tension adjustment.
   - Remove slack from the belt by turning the adjustment nut (1).
   - Tighten the tensioner 5/8" more.
   - Tighten the upper tensioner nut (2).
   - Tighten the nuts (6) that hold the debris guard.

   Note: There are notches on the tightener (3) that can be used as a reference point. The notches can also be used to see if the conveyor has slackened off.

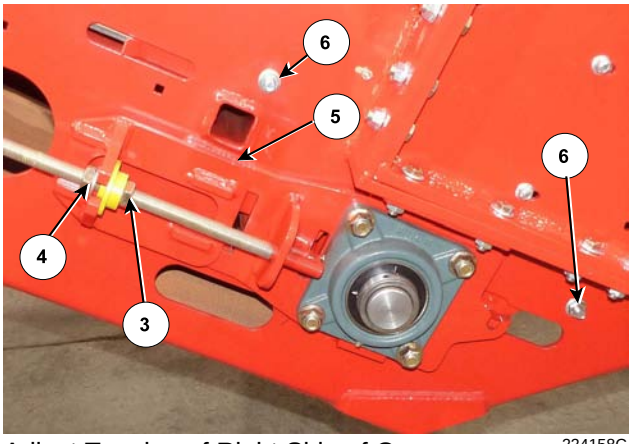


Adjust Tension of Motor Side of Conveyor 224159C

   On the lower right side of the conveyor:
   - The tightness of the conveyor will need to be adjusted if there is slipping of the conveyor or the conveyor does not move when the motor is engaged.

   - Loosen the nuts (6) that hold the debris guard.
   - Loosen the upper nut (4) of the tension adjustment.
   - Remove slack from the belt by turning the adjustment nut (3).
   - Tighten the tensioner 5/8" more.

   - Compare the notches (5) to the motor side of the conveyor.
     - Adjust so the notches are at the same place on both sides.



Adjust Tension of Right Side of Conveyor 224158C

Note: There are notches on the tightener (5) that can be used as a reference point. The notches can also be used to see if the conveyor has slackened off.

- Tighten the upper tensioner nut (4).
- Tighten the nuts (6) that hold the debris guard.

3. Check the tracking of the conveyor.

   - Start the engine of the machine.

   - Select Load on the Display.

   Ensure the milling head speed is set to 0 (zero) rpm so the head is not turning while working in this area.

   Follow the procedure given above for changing the milling head speed in the display.

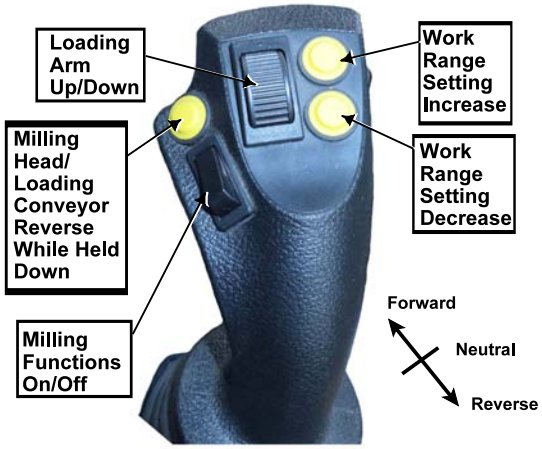
   - Set the loading conveyor speed to 10 %. This slow speed allows the conveyor to turn while adjusting for tracking.

   The tracking of the conveyor belt can be viewed from the mineral loading door or by looking through an opening in the side of the loading arm.

   - Press the joystick button to turn on the milling functions of the loading conveyor.

   - Check if the loading conveyor is running centered between the side walls of the loading arm.

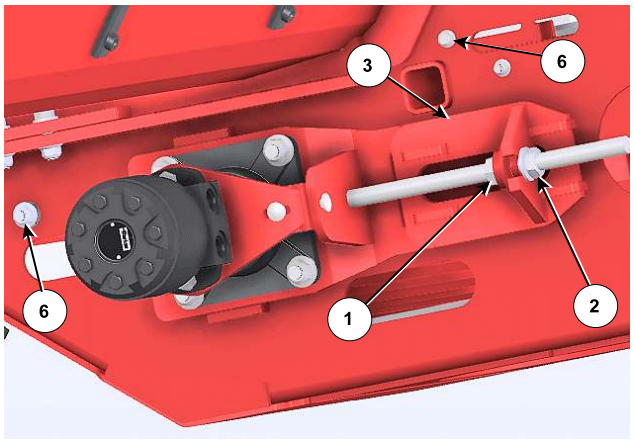
View the Tracking of the Conveyor
(Shown as Viewed through Mineral Door) 223417



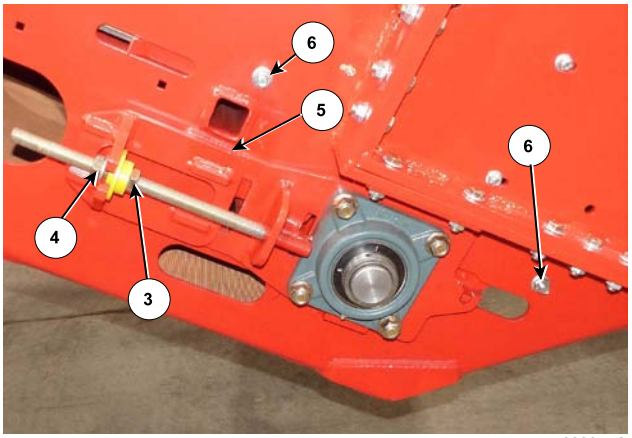
Start the Conveyor for Tracking Adjustment 223193C1

To adjust the lower conveyor tracking:

- On the side the conveyor should move toward,
  - Loosen the nuts (6) holding the debris guard.
  - Loosen the upper tensioner nuts (2)(4)
  - Move the lower tensioner nuts (1)(3) to move the belt.
    - Do small adjustments and check the effect on the clearance to the sidewalls of the arm.
- When done adjusting tighten the upper nuts (2)(4).
- Tighten the nuts (6) holding the debris guard.



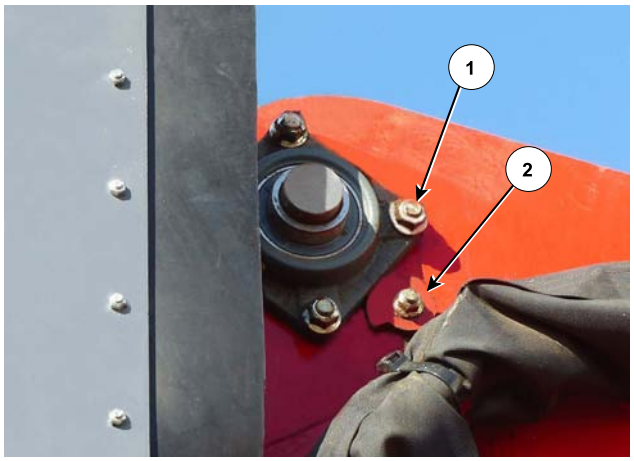
Adjust to Move Conveyor - Left Side 222014C



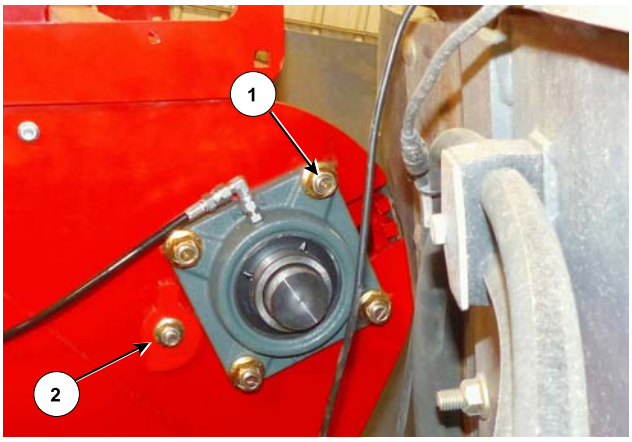
Adjust to Move Conveyor - Right Side 222015C

To adjust the upper conveyor tracking:

- On the side the conveyor should move toward, loosen the nuts holding the bearing (1).
  - The bearing bolts are positioned inside slots.
- Turn the adjusting cam (2) to move the belt.
  - Do small adjustments and check the effect.
- When done adjusting the upper tracking tighten the adjusting cam (2) and the bearing bolts (1).



Adjust Upper Bearing for Conveyor Tracking - Right Side 219369C2

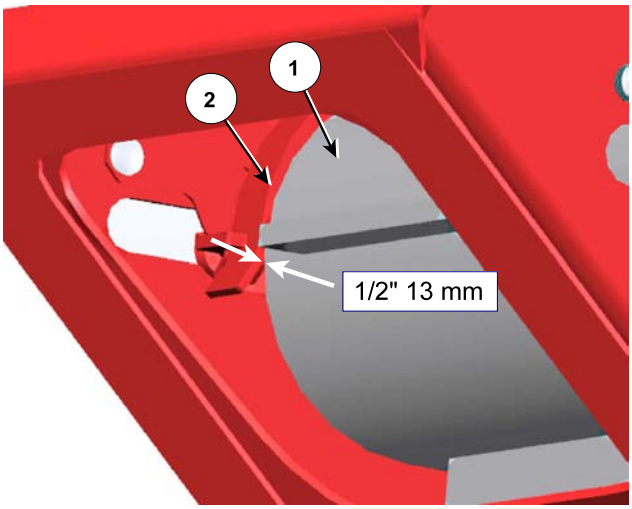


Adjust Upper Bearing for Conveyor Tracking - Left Side 220007C

4. Adjust the right and left lower conveyor debris guard (2) located inside the arm housing.

   - Check that there is a ½" (13 mm) clearance between the guard (2) and the belt (1).

     - The debris guard (2) can be viewed from the bottom of the loading arm.

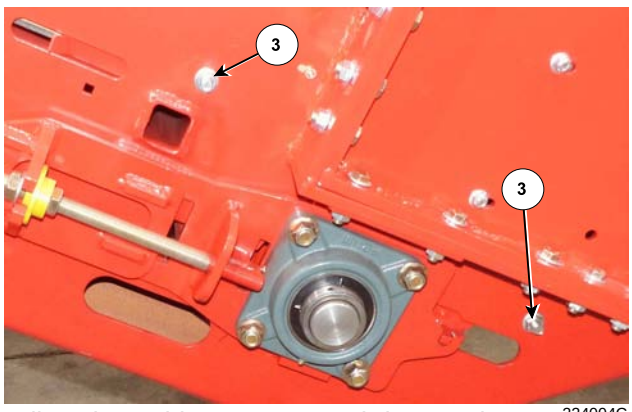


Check the Clearance of the Inside Conveyor Debris Guards 224003C

   - To adjust a debris guard, loosen 2 nuts (3) located on the outside of the loading arm.

   - Move the debris guard so that there is ½" (13 mm) between the guard (2) and the belt (1).

   - Tighten the nuts (3).



Adjust the Inside Conveyor Debris Guard 224004C

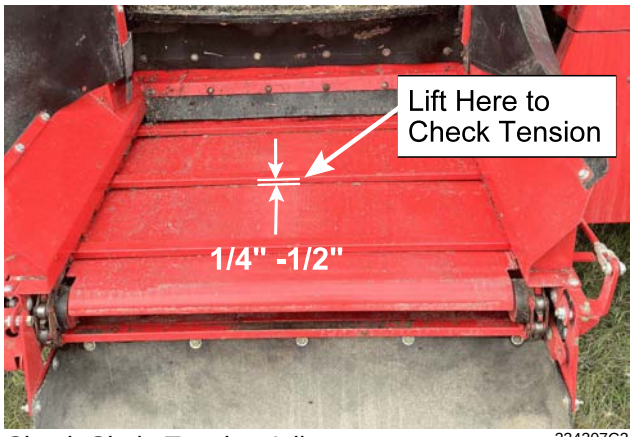
Adjusting the Unloading Conveyor Chains

- Lower the conveyors to adjust the chain tension.

- Adjust both the left and right side of each conveyor.

! Check the tension of the chain.
  - Lift the middle slat of the conveyor.
    - The slat should be able to lift 1/4" to ½" from the chain bed.

  - If the chain needs to be adjusted, follow the steps listed below.



Check Chain Tension Adjustment 224207C2

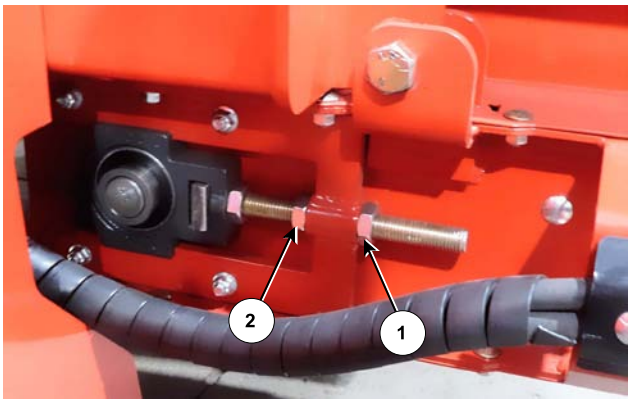
! Adjust chain tension at the conveyor right and left side:

  - Loosen the locking nut (1) on the tension adjusting bolt.

  - Turn the adjusting nut (2).

  - Check the tension by lifting the middle slat of the conveyor,
    - Check that it can be lifted 1/4" to ½" from the chain bed.
    - Do not over tighten the chain.

  - Tighten the locking nut (1).



Adjust Unload Conveyor Chain Tension 222327C

Diesel Exhaust Fluid (DEF) Tank

When handling DEF, follow these procedures:

- Do not breathe DEF vapor or mist.
- Do not eat, drink or smoke when using DEF.
- Avoid DEF contact with eyes, skin and clothing.
- Wash thoroughly after handling DEF.

- The DEF tank is located on the right side of the machine behind the engine cover next to the battery switch.

- Check that the breather hole in the DEF tank is open.

Note: Fill the DEF tank each time the fuel tank is filled.

- The DEF tank capacity is 57 Liters (15 US gallons) .
- There are filters inside the DEF tank that will need to be replaced.
  - Refer to the recommended change interval Schedule.
  - Refer to Cummins engine manual for filter replacement procedures.

DEF Tank Location 223271

Air Conditioning System

Do not attempt to service the air-conditioning system. Contact your dealer for service. Failure to comply could result in death or serious injury.

Welding Information

It is recommended to not do welding on the machine.

If there is a need to weld, then take precautions to not damage other items/components on the machine.

- Disconnect the battery cables before welding on the machine or other repairs.

- Place the weld connections as close as possible to the area being welded.

- Protect hydraulic hoses and components from damage.

- There are many sensitive electronic devices located in numerous places on the machine.
  - Disconnect computers, electrical monitors and other electronic devices to prevent damage.

! Main computers and electrical monitors to disconnect:
  - Cummins engine computer at the rear of the machine
  - Bosch RC28 controller, on the back side of the electrical box with the battery disconnect switch
  - Rear steering valve - on rear axle
  - Front steering valve - on front axle
  - COBO cab controller, behind the interior cab fuses - under the panel next to the console
  - Bosch DI4 Display - in the console
  - Danfoss steering display - in the console
  - Weigh scale indicator - in the cab
  - Brigade bird's eye ECU, if installed
  - Brigade camera display - in the cab
  - Proemion telematics computer - in the panel next to the console in the cab

! Optional ones to disconnect:
  - Eaton CANbus relay box, behind the battery disconnect switch
  - Joystick - in the console
  - SASA steering wheel sensor
  - All cameras
  - Diesel heater - in the cab
  - Diesel heater screen - in the cab
  - HVAC fan controller
  - HVAC controller
  - Canbus keypads in the cab if the welding is on the cab
  - Radio in cab
  - Mirror control

Recommended Service Interval Chart

Note: The Engine Service Schedule part of this Service Chart was adapted from the Cummins Engine Manual.

See the Cummins Engine manual for additional information and procedures.

Note: Refer to the service manuals for the other components.

- To view the engine hours on the machine press the Info button on the display.
  - Rotate the dial to show Engine Info.

Daily
Check Engine Oil Level
Check Pump Drive Oil Level
Check Engine Air Cleaner Service Indicator
Drain Water from Fuel Water Separator
Check Hydraulic Oil Tank Level
Check Hydraulic Components for leaking
Check Mixer Screw Oil Levels
Check the Loading Belt Tracking Alignment (adjust if needed)
Remove Trash and Debris
Clean the Radiator, Air Cooler and Condenser as Required
Clean All Cameras

Every 50 Service Hours
Grease Points as Indicated in this Section
Drain Fuel Tank Sump
Check Wheels
Check Tire Lug Nuts
Check Tire Inflation

Every 100 Hours
Grease Driveline Shafts
Grease Screw Drive Shafts
Change Axle Differential Oil - First Change
Change Axle Hub Reduction - First Change
Change Oil - Mixing Screw Gearbox - First 100 hours
Adjust Brakes - First 100 Hours

Every 250 Service Hours
Check Axle Differential Oil Level
Check Axle Hub Reduction Oil Level
Check Radiator Hoses
Check Suspension Components

Every 500 Service Hours or 1 Year
Replace Engine Air Filters
Inspect Engine Air Intake System
Change Engine Oil and Filter
Replace Fuel System Filter Water Separator
Replace Fuel System Secondary Filter
Check Battery Electrolyte Level
Service Battery Connections
Change Pump Drivebox Oil - First 500 hours
Check Mixing Screw Gearbox Seals and Screw tightness
Check Wheels and Bolt Torque
Change Oil Pump Filters or as indicated on Display
Change Hydraulic Oil Tank Filter or as indicated on Display
Adjust Brakes

Every 1000 Service Hours
Replace Cab Filter
Check Accumulator Charge Pressures
Inspect Engine Belt
Inspect Engine Belt Tensioner
Inspect Engine Water Pump
Change Axle Differential Oil
Change Axle Hub Reduction Oil
Change Pump Drivebox Oil
Change Hydraulic Oil in Main Oil Tank & Change Tank Filter
Grease Swivel Links holding the Weigh Load Cells

Every 1500 Service Hours
Replace Engine Crankcase Breather Element

Every 2000 Service Hours
Inspect Engine Mounts
Inspect Starting Motor
Change the Oil in the Mixing Screw Driveboxes
Check Tightness of Screws on Mixing Screw Drivebox
Change the Bushings on the Front and Rear Suspension Stabilizer Components

Every 3000 Service Hours or 2 Years
Inspect the Alternator
Replace Alternator and Fan Belts
Change the Engine Coolant
Grease the Swivel Link Threads

Every 4000 Service Hours
Clean/Test Aftercooler Core

Every 4500 Service Hours
Inspect the Turbocharger

Every 5000 Service Hours
Replace the Diesel Exhaust Fluid Filter
Replace the DEF Injector
Check and/or Replace the Seals of the Screw Planetary Gearbox

Table of Contents for Section 8 - Accumix AMX1000s Troubleshooting

Troubleshooting

Engine

Symptom	Problem	Solution
Engine Will Not Crank	Joystick not in Neutral	Put joystick in neutral.
	Parking Brake	Parking brake not turned on. Turn on the Parking Brake.
	Mixing Screw functions turned on, checkmark in Low / Med / High setting	Uncheck screw speed on the Display.
	Oil level in tank low	Check the hydraulic oil level in the oil tank reservoir. If the oil level goes below a preset level the engine will not start to protect the hydraulic pumps.
	Fuse blown in fuse panel	Check fuses and replace if needed.
	Battery Switch turned Off	Turn on the Battery Switch.
	Batteries	Check the condition of the batteries. Clean the battery posts. Charge the batteries.
Engine Turns off	Out of fuel	Check the fuel level. Fill if needed. Prime the fuel system.
	Hydraulic Oil Tank Oil Level	Check the hydraulic oil level in the oil tank reservoir. If the oil level goes below a preset level the engine will turn off to protect the hydraulic pumps.

Engine Overheats	Cooling Radiator	Turn engine up to a high RPM and push the Reverse Fans button to do a manual engine fan reversal to clean out debris from the radiator.
		The cooling radiator screens and radiator may be clogged with debris. Clean the screens and radiator.
Engine Hard to Start	Engine Preheaters	The Display shows a "Wait to Start" symbol to indicate the combustion air preheaters are working. Wait to crank the engine until the "Wait to Start" symbol goes out.
	Fuel	Use a grade of fuel according the ambient temperature.
	Cold Weather	Refer to the recommendations given in Section 5 for Cold Weather Starting.
Engine Lacks Power	Engine Derated	Refer to the Cummins Engine manual for conditions causing engine derating.
	Low DEF	The engine will derate if the DEF level gets low in the DEF tank.
	Water in the fuel	Drain the water from the water separator filter. Drain the water from the fuel tank. Refer to Section 7 for Information.
	Restricted Air Intake	Check the air filters located inside the engine cabinet. Replace as needed.
		Check the air intake pre-cleaner located in the engine cabinet. Remove any debris restricting air flow.

Hydraulic System

Hydraulic System Overheating	Oil Cooling fan	Check the hydraulic connections to the cooling fan.
		Check the connection to the oil temperature sensor which is on the hydraulic tank.
	Fan reversing solenoid	Check the solenoid for a good wiring connection.
	Oil cooling radiator	Clean the screen and radiator from debris that may be preventing air flow through the cooler.
Low oil pressure	Oil Filters	Check the condition of the oil filters. Refer to the Hydraulic System Info screen on the Display for the condition of the filters. Replace.
	Oil leak	Check the hoses and connections for leaks. Replace or repair.

Travel

Symptom	**Problem**	**Solution**
Machine slows and/or stops	Low oil in Hydraulic Tank	If the oil in the hydraulic tank is below a certain level, the engine will shutdown, If traveling when the engine shuts down, the machine will decelerate abruptly.
Machine will not drive or drives very slowly	Motor Speed Sensor	Check the solenoid for a good wiring connection.

Machine only drives slowly in Work Mode	Low range selected in Work Mode.	Check the selection in Work Range on the display. Use the button on the joystick to increase the range. The speed ranges can be set in the Menu - Operating Settings screen. See Section 3 for more information.
Park brake will not release	Foot not on the brake pedal.	Place foot on the brake and release the park brake.
	Joystick not in neutral	Place joystick to neutral position and try to release again.

Steering

Symptom	**Problem**	**Solution**
Cannot Shift into Circle Steer or Crab Steer	In Travel mode	Circle and Crab Steer are only available in Work Mode. Shift into Work mode then change steering mode.
Steering hard to steer	Heavy Load on a Hard Surface While Not Driving	Heavy loads on hard surfaces (such as concrete) make it difficult to turn the wheels when not driving. Move the machine forward to make the steering easier.
	Hydraulic connection	Check the hydraulic connection at the steering valve.
	Engine has stopped	Machine can be steered but with manual force on the steering wheel.

Mixing Screws

Symptom	Problem	Solution
Screws will not start or they stop during operation	Over pressure in the pump due to high loading	Turn off the screws and try to start at a lower speed.
	Load is heavy material	Load less material in the tub.
	Load has settled	Follow the procedures outlined in Section 6 for "Removing Settled Material That Is Causing the Mixing Screws To Not Turn".
	Solenoid	Check the solenoid for a good wiring connection.
	Speed Sensor	Check the solenoid for a good wiring connection.
		Check the sensor fuse.
Screw not cutting material	Aggression Bars	Move the aggression bars into the tub for more material cutting.
	Knives	Check the knives on the screws for more material cutting.
		Knives are dull. Exchange the lower knives of the screws with the upper knives to get more wear life. Lower knives get more wear. Replace with new knives.
Front Mixing Screw Not Turning	Screw Driveline	Check that the driveline from the rear mixing screw drivebox is connected to the front mixing screw drivebox.

Milling Head/Loading Conveyor

Symptom	Problem	Solution
Loading arm will not lower	Unload Mode Selected	Switch to Load Mode on the Display.
Loading conveyor and milling head stop during operation	Off button or reverse button pressed during operation	Back the machine away from material and restart the milling head.
	Loading material too heavy resulting in plugging the conveyor and milling head	Back machine away from material. Start the milling head and hold the reversing button to clear material out of the loading belt and milling head.
Milling head stops during operation	Trying to load too much material	Leave the milling head turned on and back away from material. The milling head should start up again.
	Material plugged in the milling head or auger	With the milling function turned on press and hold the reverse button to push out material. A few reverse/forward cycles may have to completed to clear material.
		Stop the milling process. Follow the procedure outlined in Section 6 to manually remove plugged material from the auger/milling head/conveyor.
	Drive belt incorrect tension or broken.	Check milling drive belt. See Section 7 for procedures to tension the drive belt. Replace drive belt.
Milling head and loading conveyor will not start	Not in LOAD Mode	Switch to LOAD mode on the display. Turn on the milling functions with the joystick.

	Milling speed or conveyor speed presets set to 0%	Refer to Section 3 for information to adjust milling head and conveyor speed.
	In Travel Mode	Switch to Work mode.
Milling head or loading belt start but are running slow	Milling speed or conveyor speed presets set low	Refer to Section 3 for information to adjust conveyor and milling head speed.
Material being loaded is going too far into the tub or not far enough.	Loading conveyor speed too fast or slow.	Refer to Section 3 for information to adjust conveyor speed.
Loading Conveyor not moving	Not in LOAD Mode	Switch to LOAD mode on the display. Turn on the milling functions with the joystick.
	Conveyor speed setting	Adjust the conveyor speed in the Display. Refer to Section 3 for information on adjusting the % speed of the conveyor.
	Hydraulic Motor	Check the hydraulic connections at the conveyor motor are in good condition.
	Solenoid	Check the solenoid for a good wiring connection.
Loading conveyor moving to slow/fast.	Conveyor speed setting	Adjust the conveyor speed in the Display. Refer to Section 3 for information on adjusting the % speed of the conveyor.
Loading Conveyor Rubbing on Sides of Loading Arm	Conveyor not centered on rollers	Refer to Section 7 for information on centering (tracking) the conveyor.
Material is loading to far and landing on the engine compartment	Loading Conveyor Speed	Loading conveyor speed is set to high. Slow down the conveyor speed.
	Top Deflector	The top deflector of the loading arm may have come loose or is worn out. Tighten or replace.

Unload

Symptom	Problem	Solution
Unload conveyor does not turn	In LOAD mode	Change to Unload mode on the display.
	Hydraulic motor	Check the hydraulic connections at the motor.
	Material caught in the conveyor chains	Remove material from the chains.
Material spills over sides of conveyor	Too much material released from tub	Control the amount of material coming from the tub by controlling the tub door.
Not enough material comes out of tub door	Mixing Screw Speed	Increase the speed of the mixing screws to move more material out.
	Tub Door Height	Raise the tub door to release more material.

Weigh System

Symptom	Problem	Solution
Weigh scales do not seem to show correct weight	Connection to the weigh bar	Check for good wire connections at all 4 weigh bars.
	Calibration of the weigh scales	Follow the scale calibration procedure as indicated in the Weigh Scale Operator manual.

Ladder to Cab

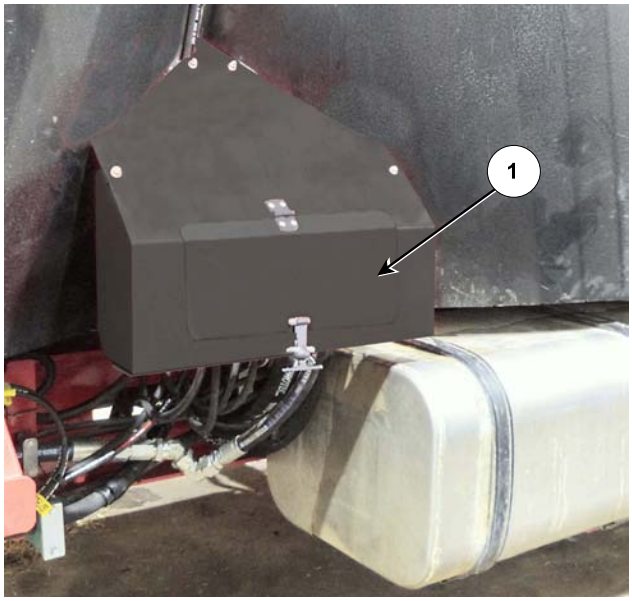
Symptom	Problem	Solution
Ladder does not extend or retract with parking brake on or off	Ladder Switch	Move the ladder switch to Operate for ladder activation with the parking brake.

Manual Activation of the Hydraulic Block for Troubleshooting

On the right side of the machine, between the tanks, there is a hydraulic block for manual activation of some of the machine functions.

- These manual activations can be used to determine if malfunction of the machine is caused by something other than hydraulics.
- These manual activations can also be used to override functions.

- Open the access panel (1) to the hydraulic block.

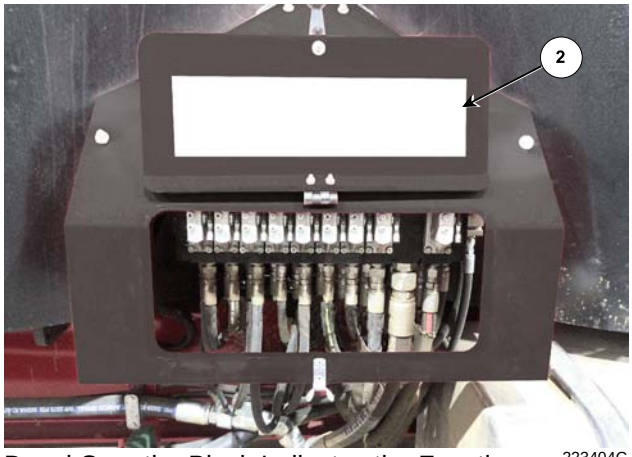


Open the Ac cess Panel to the Hydraulic Block 223403C

- Refer to the decal (2) on the back of the access panel to determine the manual functions of each section of the hydraulic block.

- Place the handle into the valve and move according to the decal to check the function.

- The hydraulic block can also be used to override the component if something is not working as it should.



Decal Over the Block Indicates the Functions 223404C

PULL	FWD	DOWN	UP	OVERRIDE	UP	DOWN	FWD	UP		FWD	PULL
	REAR CONVEYOR MOTOR	REAR CONVEYOR CYLINDER	REAR DOOR CYLINDER	TUB TRANSITION WIPER MOTOR	FRONT DOOR CYLINDER	FRONT CONVEYOR CYLINDER	FRONT CONVEYOR MOTOR	LOADING ARM CYLINDER	INLET	LOADING ARM CONVEYOR MOTOR	
PUSH	REV	UP	DOWN	OVERRIDE	DOWN	UP	REV	DOWN		REV	PUSH

E22924_A

Hydraulic Block Functions E22924_A

Table of Contents for Section 9 - AccuMix AMX1000s Specifications

Machine Specifications

Tub		
Capacity	1,000 ft^3	28.3 m^3
Number of Screws	2	
Screw Speed	3 Adjustable Presets - Range 0 to 50RPM	
Aggression Plates	Yes	
Weigh System	4 Point Weighing System	

Engine		
Engine	Cummins B6.7 Six Cylinder Diesel - Tier 4 Final	
Engine Power	310hp	232 kW
Engine Cooler	Flexxaire Auto Reversing Fan	
Hydraulic Cooler	Hydac Cooler with Auto Reversing Fan	
DEF Tank Capacity	8.5 US gal	32 liters
Fuel Tank Capacity	123 US Gal	465 liters

Loading Arm		
Milling Head Power	150 hp	112 kW
Milling Head Speed	Adjustable 0 to 600 rpm	
Milling Head Width	92 in.	2,335 mm
Max Loading Height	260 in.	6,600 mm

Unloading	
Conveyors	Chain with Steel Slats or Drop Chute
Positions	Standard: Front LHS and Rear LHS or RHS (Optional: additional 3rd Rear door)
Maximum Feedout Height	42 in (1067 mm)

Drivetrain		
Drive Modes	Work - 4 Adjustable Ranges - maximum 25 km/h (15 mph) Travel - maximum 40 km/h (25 mph)	
Ranges	4 in Work Mode	
Max Speed	40 km/h	25 mph
Transmission	Full Hydrostatic (AWD)	
Tires	600/55R26.5	
BKT Tires	70 psi (483 kpa)	
CEAT Tires	78 psi (538 kPa)	
Suspension	Mechanical - Leaf Springs & Stabilizer Bars	
Steering	Front, Circle and Crab	

Dimensions and Weights		
Unloaded Weight w/Arm	46,000 lbs	20,909 kg
Unloaded Weight w/o Arm	40,000 lbs	18,182 kg
Max Payload	26,000 lb	11,820 kg
Length - with Loading Arm	478 in. (39'10")	11,940 mm
Length - without Loading Arm	380 in. (31'8")	9,650 mm
Height (Top of Cab Antenna)	137 in. (11'5")	3,480 mm
Width - LHS Conveyor Only (up)	132 in. (11')	3,350 mm
Width - LHS Conveyor Only (down)	141 in. (11'9")	3,582 mm
Width - Conveyor both sides (up)	138" (11'6")	3,500 mm
Width - Conveyor both sides (down)	171 in. (14'3")	4,344 mm
Width - LHS Drop-Chute Only (up)	126 in. (10'6')	3,200 mm

Width - LHS Drop-Chute Only (down)	126 in. (10'6")	3,200 mm
Width - Drop-Chute both sides (up)	127 in. (10'7")	3,226 mm
Width - Drop-Chute both sides (down)	133 in. (11'1")	3,378 mm
Wheel Base	275 in.	6,985 mm
Ground Clearance	19 in.	480 mm

Cab and Controls	
Display	Touchscreen
Drive Control	Digital Joystick speed control
Cameras	Back-up and Tub, Right Hand (Optional: 360° Birds-eye view)
Mirrors	Heated, motorized
Seat	Adjustable air-ride
Climate	Auto Heat and A/C. (Optional: Diesel Cab Heater w/auto-start timer)
Electrical System	12V

Capacities and Specifications

1. Engine Fuel Tank
   - 465 liters (123 US gallons) (102 Imp gallons)
   - Fuel Grade (depending on weather conditions)
     - No. 1 ultra-low sulfur is ASTM D975 grade 1D S-15
     - No. 2 ultra-low sulfur is ASTM D975 grade 2D S-15

2. DEF Tank
   - 40 Liters (10.5 US gallons)
   - Use approved Diesel Exhaust Fluid

3. Engine Oil
   - 5W40 Heavy Duty Engine Oil
     - Total System - 18 liters (4.7 US gal)

4. Engine Coolant
   - 50/50 Coolant mix of glycol and good quality water
   - 45 L (11.9 US gal) - Complete system
     - The standard engine operating temperature range is 86^0C to 97^0C (186^0F to 207^0F).
     - The maximum allowed operating temperature is 107^0C (225^0F).

5. Engine Air Filters - Refer to the Cummins Owners Manual

6. Tires
   - 600/55R26.5
   - Air Pressure:
     - BKT Tires - 70 psi (483 kPa)
     - CEAT Tires 78 psi (538 kPa)

7. Wheel Nut Torque
   - 480 lb-ft (653 Nm)

8. Driveline, Suspension and General Grease Specifications
   - E.P. grease meeting the N.L.G.I. #2 specifications and containing no more than 1% molybdenum disulfide

9. Hydraulic Oil Tank
   - MV-32 type oil - (See Bosch Rexroth Fluid Rating List)
   - 160 liters (42.3 US gallons)
   - Oil temperature operating ranges:
     - 80^0C (176^0F) is the maximum temperature for continuous operation.
     - 85^0C (185^0F) indicates a warning of increasing oil temperature. Check the oil cooling system.
     - 90^0C (194^0F) is the maximum temperature for short term operation.
       - Continued 90^0C (194^0F) operation is a danger to the hydraulic system.

10. Hydraulic Oil Tank Return Filter
    - 6 micron inorganic microfiber filter, filter length #2

11. Wheel Drive Pump Filter
    - Rexroth Part R902603004

12. Mixer Pump Filter
    - Rexroth Part R902603243

13. Milling Pump Filter
    - Rexroth Part R902603243

14. Pump Gearbox (on engine flywheel)
    - EP150 synthetic oil
    - Approx. 4.0 liters (1.06 US gallons) - verify with dipstick level

15. Mixing Screw Planetary Gearbox
    - EP150 Synthetic
    - 19 liters (5 US gallons) /each gearbox + tank on tub of 10-11 liters (2.6 - 2.9 US gallons)

16. Milling Head Gearbox
    - Approximately 900 ml of Synduro SHB 220 Synthetic oil

17. Milling Head Drive Belt
    - V-belt,B,127,5 Band, Aramid

18. Axles
    - Center part of axle
        - 75W90 synthetic oil - LS additive oils. API GL5
        - Fill to level plug (Approx. 14.5 liters)
    - Hub part of axle
        - 75W90 synthetic oil API GL5
        - Fill to level plug
    - Grease specifications
        - E.P. grease meeting the N.L.G.I. #2 specifications and containing no more than 1% molybdenum disulfide Pinions

    - Brakes
        - Uses the hydraulic system oil.

19. Batteries
    - 12 volt Group D Commercial

20. Cab Air Filter
    - 5" x 23" filter.

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Highline New Equipment Limited Warranty Policy

One (1) Year / 12 Months - Parts and Labour

Highline Manufacturing (hereinafter "Highline") warrants this new product of Highline's manufacturer to be free from defects in material and workmanship, under normal use and service for one (1) full year after initial purchase/retail sale. Highline will warrant its product for one (1) year parts and labor, if performed by a qualified Dealer. This Limited Warranty shall apply only to complete machines of Highline's manufacture. Parts are covered by a separate Limited Warranty.

EQUIPMENT AND ACCESSORIES NOT OF HIGHLINE'S MANUFACTURE ARE WARRANTED ONLY TO THE EXTENT OF THE ORIGINAL MANUFACTURER'S WARRANTY AND SUBJECT TO THEIR ALLOWANCE TO HIGHLINE ONLY IF FOUND DEFECTIVE BY SUCH MANUFACTURER.

During the Limited Warranty period specified above, any defect in material or workmanship in any warranted item of Highline Equipment not excluded below shall be repaired or replaced at Highline's option without charge by any authorized independent Highline Dealer. An authorized Dealer must make the warranty repair or replacement. Labour is paid in accordance with Highline's Labour reimbursement policy. Highline reserves the right to supply remanufactured replacement parts as it deems appropriate.

RETAIL PURCHASER RESPONSIBILITY
This Limited Warranty requires proper maintenance and periodic inspections of the Equipment as indicated in the Operator's Manual furnished with each piece of new Equipment. The cost of routine or required maintenance and services is the responsibility of the retail purchaser. The retail purchaser is required to keep documented evidence that these services were performed. This Highline New Equipment Limited Warranty may be subject to cancellation if the above requirements are not performed.

EXCLUSIONS AND LIMITATIONS
The warranties contained herein shall NOT APPLY TO:

1. Any defect which was caused (in Highline's sole judgement) by other than normal use and service of the Equipment, or by any of the following:
    a. accident
    b. misuse or negligence
    c. overloading
    d. of reasonable and proper maintenance
    e. improper repair or installation
    f. unsuitable storage
    g. non-Highline approved alteration or modification
    h. natural calamities
    I. vandalism
    j. parts or accessories installed on Equipment which were not manufactured or installed by Highline authorized Dealers
    k. the elements
    l. collision or other accident.

2. Any Equipment whose identification numbers or marks have been altered or removed.

3. Any Equipment which any of the required or recommended periodic inspection or services have been performed using parts not manufactured or supplied by Highline or meeting Highline Specifications including, but without limitation, lubricants (oil, grease), belt lacings, and hydraulic fluids.

4. Any Equipment used in demonstrations not performed by a Highline Dealer. Warranty will be at the discretion of Highline for all other demonstration warranty.
5. New Equipment delivered to the retail purchaser in which the warranty registration has not been completed and returned to Highline within ten (10) days from the date of purchase.

6. Any defect that was caused (in Highline's sole judgement) by operation of the Equipment not abiding by standard operating procedures outlined in the Operator's Manual.

7. Tire Limited Warranties and support are the responsibility of the respective product's manufacturer.

8. Transportation costs, if any, of transporting to the Highline Dealer.

9. In no event shall Highline's liability exceed the purchase price of the product.

10. Highline shall not be liable to any person under any circumstances for any incidental or consequential damages (including but not limited to, loss of profits, out of service time and damage to equipment which this equipment may be attached) occurring for any reason at any time.

11. Diagnostic and overtime Labour premiums are not covered under this Limited Warranty Policy.

12. Depreciation damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow operating instructions, misuse, and/or lack of proper protection during storage.

13. Accessory systems and electronics not of Highline's manufacture are warranted only to the extent of such manufacturer's respective Limited Warranty if any.

14. Wear components.

PARTS WARRANTY
Parts replaced in the warranty period will receive the balance of the one year New Equipment Limited Warranty.
Replacement parts after the original machine warranty are warranted to be free from defects of material for ninety (90) days or the part will be repaired or replaced, without Labour coverage for removal and reinstallation.

EXCLUSION OF WARRANTIES
UNLESS OTHERWISE REQUIRED BY LAW, AND EXCEPT FOR THE WARRANTIES EXPRESSLY AND SPECIFICALLY MADE HEREIN, HIGHLINE MAKES NO OTHER WARRANTIES, AND ANY POSSIBLE LIABILITY OF HIGHLINE HEREIN UNDER IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE. HIGHLINE RESERVES THE RIGHT TO MODIFY, ALTER AND IMPROVE ANY PRODUCT WITHOUT INCURRING ANY OBLIGATION TO REPLACE ANY PRODUCT PREVIOUSLY SOLD WITH SUCH MODIFICATION. NO PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY, OR TO ASSUME ANY ADDITIONAL OBLIGATION ON HIGHLINE'S BEHALF.

AMX1000S Extended Service and Warranty Policy

Highline Manufacturing (referred to hereafter as Highline) warrants its new, unused, Agricultural Equipment to be free of defects in material and workmanship at time of the delivery according to the Highline New Equipment Limited Warranty Policy found at the end of each product manual. In exception to this Highline offers the supplemental information below:

1) **LOSS OF USE:** In the event the AMX1000S is unable to function (Machine Down), a replacement unit will be supplied by the dealership within a 24 hour period. Highline Manufacturing will reimburse the dealership for the use of the rental machine at the area published rental rate until the AMX1000S is in a state of serviceable repair.

2) **5-YEAR LIMITED EXTENDED WARRANTY REPAIR PERIOD**

- 1st Year: Highline will repair or replace, at its option, without charge for parts or labor, any defective part of the equipment for a period of twelve (12) months from the warranty start date to the first retail purchaser (see base warranty policy).
- **2nd Year:** Highline will repair or replace, at its option, without charge for parts, any Highline Manufactured Part that is found to be defective for the period of thirteen (13) months to twenty-four (24) months from the warranty start date to the first retail purchaser.
- **3rd year:** Highline will repair or replace, at its option, for a charge of 50% of the parts, any Highline Manufactured Part that is found to be defective for the period of twenty-five (25) months to thirty-six (36) months from the warranty start date to the first retail purchaser.
- **5th year:** Highline will repair or authorize the repair, at its option, without charge for parts or labor, any defective part of the AM1000S mixer structural frame including but not limited to missed or failed welds and structural deficiencies for the period of sixty (60) months from the warranty start date to the first retail purchaser.

NOTE: A Highline Manufactured Part is any part which has been manufactured by Highline Manufacturing. Parts purchased from an outside supplier are not considered to be manufactured by Highline. Purchased parts would include roller chain, hydraulic motors, hydraulic cylinders, bearings etc.

Any parts that are covered by an Extended Warranty published by Highline are an exception to the Basic Policy and are to be warranted as per the details of the Extended Warranty document. The extended warranty policy may change from time to time without prior notice from Highline.

1) **MAJOR COMPONENT WARRANTY DETAIL:**

- Hydraulic drive pumps and motors: Highline will repair or replace, at its option, without charge for parts or labor, any defective hydraulic pump and/or components or hydraulic motor and/or components for a period of 12 months from the warranty start date to the first retail purchaser. The hydraulic pump or hydraulic motor will be warrantied against any defects in material and/or workmanship under normal use and while being maintained in accordance with the operators manual or supplemental instructions. Warranty qualification will require the submission of oil samples.
- **Mechanical mixer gearbox drive units:** Highline will repair or replace, at its option, without charge for parts or labor, any defective mixer drive gearbox and/or components for a period of 24 months from the warranty start date to the first retail purchaser. The mixer drive gearbox will be warrantied against any defects in material and/or workmanship under normal use and while being maintained in accordance with the operators manual or supplemental instructions. Warranty qualification will require the submission of oil samples.

- **Cummins Engine:** All warranty work must be completed by a Cummins certified Maintenance Technician. Engine components are warranted for a period of 24 months or 2000 hours of service from the warranty start date to the first retail purchaser. Extended Major Component Warranty covers warrantable failures of the engine cylinder block, camshaft, crankshaft and connecting rods (Parts only). This coverage begins with the expiration of the base engine warranty and ends after 3 years or 3000 hours of operation from the in service registered date. Emission components are covered for a base period of 5 years or 3000 hours, whichever comes first, from the in service date. Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect. **Upon the sale to the end user, the engine will need to be registered with Cummins.**
- **Engine Hydraulic Gear Box Pump Driver**: Highline will repair or replace, at its option, without charge for parts or labor, any defective hydraulic gearbox pump driver and/or components for a period of 12 months from the warranty start date to the first retail purchaser. The hydraulic gear box pump driver will be warrantied against any defects in material and/or workmanship under normal use and while being maintained in accordance with the operators manual or supplemental instructions. Warranty qualification will require the submission of oil samples.
- **Cab:** Highline will repair or replace, at its option, without charge for parts or labor, any defective part of the cab assembly and/or components, excluding glass, for a period of 12 months from the warranty start date to the first retail purchaser.
- **Differentials:** Highline will repair or replace, at its option, without charge for parts or labor, any defective differential and/or components for a period of 12 months or 2000 hours from the warranty start date to the first retail purchaser. The differential will be warrantied against any defects in material and/or workmanship under normal use and while being maintained in accordance with the operators manual or supplemental instructions. Warranty qualification will require the submission of oil samples.
- **Hydraulic Cylinders:** Hydraulic Cylinders are warranted for a period of 12 months from the warranty start date to the first retail purchaser. If a cylinder is leaking, seal kits must be installed by the dealer before cylinders are replaced. If the defect is found to be more extensive than a damaged seal, then a new cylinder will be provided by Highline. Please contact the Service Department regarding any questionable cylinders.

3) EXCEPTIONS TO THIS WARRANTY

In no event shall the owner be entitled to recover costs for incidental, special or consequential damages such as, but not limited to: loss of profit or revenue, other commercial losses or inconvenience.

Repair, Maintenance, and Service items not related to defects:

1) Loss or damage during shipment.
2) Failure resulting from lack of or improper maintenance.
3) Damage caused by operator abuse, negligence, or improper operation.
4) Non-defective items replaced due to customer demand unless authorized by the Highline Service Department.
5) Non-reimbursable maintenance items including but not limited to oil, grease, chains, etc.
6) Any and all costs for repairs or replacement of parts not shown to be defective.
7) Damage due to accidents.